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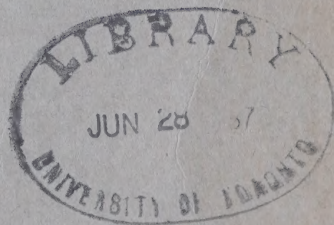
Government  
Publications

(DEPARTMENT OF FINANCE)

Canada ROYAL CANADIAN MINT

REPORT

For the Calendar Year  
1936.



Published by Authority of the HON. C. A. DUNNING,  
MINISTER OF FINANCE.

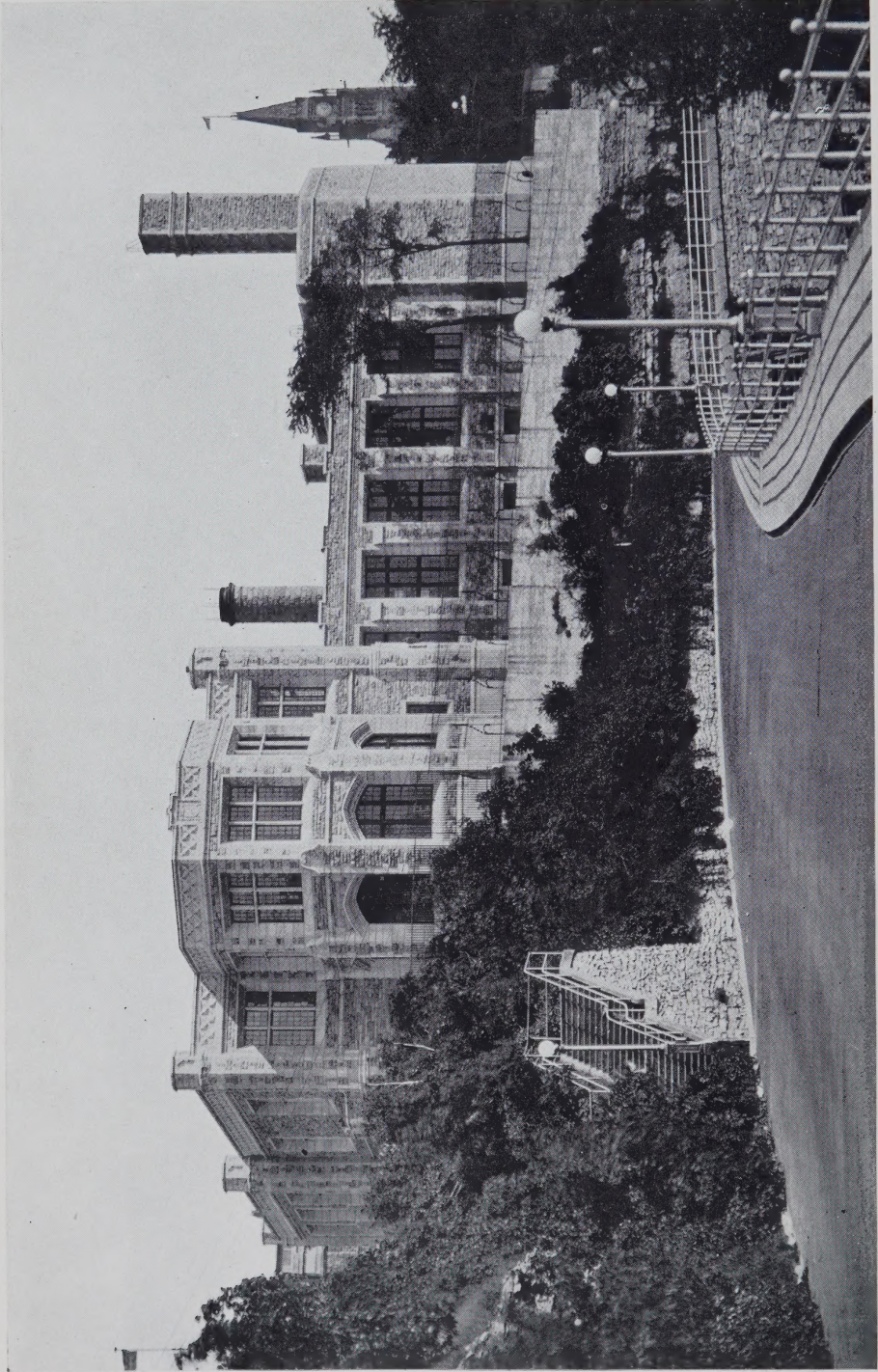
OTTAWA  
J. O. PATENAUDE, I.S.O.  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1937











View of Refinery from Lady Grey Drive.





DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year  
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1937





# ROYAL CANADIAN MINT, OTTAWA

24th April, 1937.

The Honourable  
The Minister of Finance,  
Ottawa, Ontario.

SIR,

I have the honour to submit the following report on the operations of the Royal Canadian Mint during the calendar year 1936.

## COINAGE.

The issues of coin, as detailed below, exceeded those of the previous year by \$228,880, the number of silver dollars called for showing the only decrease.

Denomination	Coin Issued in	
	1935	1936
SILVER COIN—		
1 dollar.....	\$428,120	\$306,100
50 cents.....	Nil	19,300
25 cents.....	134,400	242,000
10 cents.....	38,500	241,800
NICKEL COIN—		
5 cents.....	194,000	202,600
BRONZE COIN—		
1 cent.....	75,100	87,200
Totals.....	\$870,120	\$1,099,000

From information furnished by the Bank of Canada in the early part of the year as to the surplus held by several of the chartered banks, no requisitions for silver coin, except dollars, were expected, but after August the situation changed rapidly, and it was found barely possible to fill the heavy demands for all denominations without resorting to overtime work.

Much of the surplus held by the banks was silver coin of the old (925) standard and large quantities of this were included in the withdrawals from circulation which amounted to \$774,295, the year's transactions thus resulting in an apparent net increase of \$34,905 to the silver circulation. In addition mutilated nickel coin of the nominal value of \$987 and bronze coin, chiefly the large cents, valued at \$1,253 were withdrawn.

## COIN DESIGNS.

The inscription on the obverse of the Canadian silver dollar, first issued in May, 1935, bore a reference to the twenty-fifth anniversary of the Accession of His late Majesty, King George V, celebrated in that month. A new obverse design for dollars issued after 1935 was authorized by a Proclamation published in *The Canada Gazette* of the 1st February, 1936, the inscription being the same as on other Canadian coins, the dies used being prepared from the original master die supplied by the Royal Mint in 1911 and now used for the first time.

Immediately after the death of His late Majesty King George the Fifth I submitted to the Government certain proposals in regard to obtaining new designs for the reverses of all Canadian subsidiary coins except the dollar, drawing attention to much adverse criticism of the present series and pointing out that the issue of coins with the effigy of the new Sovereign was a fitting opportunity for making a change. Approval was given to the formation of an informal committee, consisting of Dr. W. C. Clark, Deputy Minister of Finance, the late Sir Arthur Doughty, Dr. Gustave Lanctot, Chief French Archivist, Dr. Victor Morin, President of the Antiquarian and Numismatic Society of Montreal, Mr. Eric Brown, Director of the National Art Gallery of Canada, Mr. Gerald Larkin, and Sir Wyly Grier, President of the Royal Canadian Academy of Arts, with myself as chairman, to advise the Minister in connection with the new designs. Mr. Larkin was unable to act, but the other members met and drew up a memorandum setting out the conditions of a proposed competition, and suggesting a number of subjects for the consideration of artists, who were left free at the same time to choose any other subjects which might appeal to them individually. In response to the invitations sent out seventy-six drawings and one plaster model were received from twelve Canadian artists, and from these a selection was made by the committee for consideration of the Government but, none being found acceptable, it was then decided to commission six sculptors, who had already submitted drawings, to prepare plaster models, assigning to each the subjects to be treated. At the same time it was decided to enlist the co-operation of Sir Robert Johnson, Deputy Master and Comptroller of the Royal Mint, in obtaining sketch designs from one or two outstanding British artists specializing in coin design, and I was soon in a position to submit, for the consideration of the Government, two plaster casts by Mr. Emanuel Hahn, R.C.A. of Toronto, and three sketches by Mr. G. Kruger Gray, whose medal and coin designs are known throughout the Empire, with the recommendation that, with certain modifications to be incorporated by the respective artists in the finished models, they be accepted for the new Canadian series of coins. The approval of the Government to this recommendation having been received, immediate steps were taken to have the models delivered, at the earliest date consistent with the reasonable time requirements of the artists, to the Royal Mint, London, for preparation of the master dies and punches.

Meantime the design for the obverse of the coins, showing the King's Effigy and titles, had been approved by the Government, and the work of preparing the dies was well advanced, when the abdication of His late Majesty was announced, and authority was given to continue to use the present obverse bearing the Effigy of King George V, continuing to date the reverse "1936", until dies bearing the effigy of His present Majesty could be made available. The design and inscription of the new obverse have been approved, and all work on the new coins is proceeding satisfactorily. It is with great pleasure I acknowledge the assistance received from Sir Robert A. Johnson, K.C.V.O., K.B.E., who, at a time of great stress, has gone out of his way to place his own experiences and the resources of the Royal Mint, both in regard to designs and to production of the master dies, so freely at the disposal of the Government of Canada.

### GOLD BULLION.

Reflecting the continuous increase in Canadian gold production there was again an increase in the amount of gold bullion deposited, 5,930 deposits weighing 4,431,744 ounces having been received at the Mint, and 266 deposits weighing 120,541 ounces received from the Dominion of Canada Assay Office, Vancouver, a total of 4,552,290 ounces, or 156 short tons. These deposits contained by assay 3,603,335 ounces fine gold and 520,928 ounces fine silver.



and the net amount paid to depositors by cheque, after deducting Mint and handling charges and postage due, was \$120,877,935, which included \$50,046,657 "premium", this "premium" being the difference between the statutory price of gold and the Mint purchase price as fixed weekly by the Department of Finance. The total deposits actually made at the Mint and Assay Office, distributed as to origin, were as follows:—

Source	Gross Wt.	Fine Gold	Fine Silver
	Ozs.	Ozs.	Ozs.
Canadian Mines.....	4,444,653	3,546,987	510,410
Jewellery, Scrap, etc.....	87,222	36,468	9,864
Foreign Gold Coin.....	18,826	16,934	.....
Mutilated Gold Coin.....	5	5	.....
Totals.....	4,550,706	3,600,394	520,274

Eight thousand eight hundred and seventy-six trade bars (400-ounce ingots assaying over 995.0) containing 3,610,445 ounces fine gold, were delivered to the Bank of Canada, and 15,104 ounces fine gold were issued in other forms, including contents of sweep sold, making a total issue of 3,625,549 ounces fine. The issues to manufacturers, including gold sold for cash, and gold issued in part payment of deposits amounted to 12,531 ounces fine.

### OPERATIVE DEPARTMENT.

The work of the Melting House and Coining Room is summarized in the following table:—

—	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Pieces
SILVER—				
1-dollar.....	716,224	541,349	276,550	306,100
50-cents.....				38,550
25-cents.....	365,626	322,453	197,511	972,094
10-cents.....	393,690	288,980	183,153	2,460,871
Total Silver.....	1,475,540	1,152,782	657,214	.....
NICKEL—				4,400,450
5-cents.....				
BRONZE—	Lbs.	Lbs.	Lbs.	
1-cent.....	96,358	97,650	67,872	8,768,769
Totals.....	Short Tons 98.77	Short Tons 88.35	Short Tons 56.47	16,946,834

The total number of pieces struck was 17,201,046, an increase above the figures for the previous year of over 4,000,000. The average number of pieces struck for each pair of dies was 76,790.

In addition to the work shown above, 731,000 ounces worn silver coin were melted into ingots, 132 ounces gold proof plate and 1,865 ounces silver were rolled, and 60,689 lead discs were produced from lead bars for the Assay Office.

The total number of matrices, punches and dies made for coinage purposes was 513. Two signature dies in steel were engraved for the Department of Pensions and National Health, and four for the Department of National Revenue, these being for use on cheque-signing machines. A considerable amount of work was also done on the preparation of signature dies engraved on blocks of a special pattern for use in printing the new notes to be issued by the Bank of Canada, and 160 of these have since the close of the year been completed and delivered to the Bank.

One "Flavelle" medal in gold 600 fine, and one "J. B. Tyrell" medal in fine gold were struck for the Royal Society of Canada, and two "International Mathematical Congress" medals in gold 583.1 fine were struck for presentation at the Oslo meeting, all these being engraved with the names of the recipient. The "Mathematical" medal was endowed by funds made available after the International Congress which met in Toronto in 1924, and was designed by Dr. R. Tait McKenzie, the first awards being made in 1936. Thirty-nine Long Service and Good Conduct Medals, mounted and engraved with the recipients' names, were issued to the Commissioner of the Royal Canadian Mounted Police.

Besides maintaining machinery and electrical and heating equipment in the usual high state of efficiency, the staff of the Mechanics' Shop were busily engaged throughout the year on the work of installation in the new Refinery of equipment, both old plant from the Refinery now dismantled, and additional plant designed for a larger and more modern building.

For some years trouble has been experienced with feed water supplied to the boilers, and this now appears to have been satisfactorily overcome by the installation of "scale buoys", sixteen of which, of 200 c.c. capacity each, revolve at the rate of 12 r.p.m. in a galvanized steel tank, 24" x 36" x 42", equipped with bronze paddles. The feed water passes through this tank on its way to the boilers, of which there are three of 75 h.p. each, and these on recent examination showed no sign of scale or corrosion.

### ASSAY OFFICE.

The Chief Chemist and Assayer reports as follows:—

The number of assays made from 1st January to the 31st December, 1936, was as follows:—

GOLD—		
Refinages.....	5,187	
Rough Gold.....	30,073	
Proofs.....	3,081	
Parting Proofs.....	835	
Parting Buttons.....	11,803	
Miscellaneous.....	890	
		51,869
SILVER—		
Standard Bars.....	2,163	
Proofs.....	622	
Pyx.....	407	
Fine Silver Bars.....	485	
Miscellaneous.....	1,513	
		5,190
MISCELLANEOUS—		
Mint Sweeps, Residues, etc.....	236	
Marking Act.....	60	
Suspected Counterfeit Coins.....	18	
Commercial.....	140	
Other metal determinations.....	55	
		509
Total.....		57,568



Representative samples taken from 50,000 pounds of nickel five-cent blanks supplied to the Mint were examined for composition and hardness, and the blanks were found to comply in all respects with the specifications.

Two fine gold trial plates and one fine silver trial plate were made. In exchange for the fine gold contents in cornets, 34.95 ounces of gold trial plate were sent to Vancouver Assay Office and one ounce of gold trial plate and twelve ounces of silver trial plate were sold.

The mean finenesses of silver coinage struck in 1936 were as follows:—

Denomination	Standard Fineness	Mean Fineness
1 dollar.....	800.0	799.98
50 cents.....	800.0	799.50
25 cents.....	800.0	799.77
10 cents.....	800.0	799.83

A quantity of gold plated pen nibs, which on examination were found not to comply with the Marking Act, were destroyed for the Department of Trade and Commerce.

An extensive examination of exhibits in connection with counterfeit coinage in Alberta was made in the department for the Royal Canadian Mounted Police.

The dust collected in the Cottrell Precipitator in the new Refinery, recovered from the fumes from chlorination, etc., carries high values and owing to its hygroscopic nature it is difficult to obtain representative samples. Experiments are being conducted on a process for extracting most of the gold contents before selling to smelters, which is the usual procedure in disposing of Mint sweeps, etc. These experiments, while not concluded, are sufficiently advanced to show that at least 90 per cent of the gold can be recovered and a by-product containing most of the tellurium can be obtained at a small cost. The resultant sweep, about 55 per cent by weight, containing practically all the silver, lead and little gold could be sampled without any difficulty for sale.

In dismantling the old refinery, a considerable amount of material (sand blastings, bricks and mortar from flues, etc.) was obtained which on examination was found to contain values, but not sufficiently high in the aggregate to be economically sold. On the recommendation of this department, samples of these materials were sent to the Ore Dressing plant of the Bureau of Mines to determine the feasibility of concentrating them. Their report showed that, by a combination of blanket and flotation concentration, a concentrate can be obtained containing 85 per cent of the original values and reducing the bulk from 9 to 1, which would show a profit on sale.

A test is being made, over a period, by filtration of the fumes to determine the amount of silver and gold (if any) in the fumes after leaving the Cottrell Precipitator in the new Refinery. The official test showed practically 100 per cent recovery in gold and 99.96 per cent in silver.

## REFINERY.

During the year the Refinery received 5,930 deposits from mines and sundry depositors having a gross weight of 4,431,744 ounces containing 3,509,892 ounces fine gold and 502,236 ounces fine silver, also 266 deposits from the Vancouver Assay Office with a gross weight of 120,541 ounces containing 93,438 ounces fine gold and 18,692 ounces fine silver.

Eight thousand, eight hundred and seventy-six fine gold ingots (trade bars) weighing 3,598,541 ounces with a mean assay of 996·9; granulated gold weighing 12,987 ounces with a mean assay of 999·8; 153,397·75 ounces silver bullion with a mean assay of 999·0 and 43·95 ounces granulated silver with a mean assay of 999·5 were delivered to the Mint Office. In order to obtain concordant assays, 33,248 ounces of rough gold were toughened and 200,772 ounces remelted.

Rough gold bullion weighing 3,614,710 ounces containing 2,668,033 ounces fine gold and 520,936 ounces fine silver were refined by the Miller Chlorine Process, and 425,741 ounces base metal was removed during the operation.

Deposits of refined gold weighing 922,334 ounces were poured directly into trade bars.

From crushed crucibles, firebrick and slags, 37·28 short tons sweep were obtained, and concentrates containing 864 ounces of fine gold and 492 ounces of fine silver were recovered. The sweep sold during the year contained, by assay, 2,272 ounces fine gold, and 87,500 ounces fine silver.

### DOMINION OF CANADA ASSAY OFFICE, VANCOUVER, B.C.

Two thousand and ninety-nine deposits containing 90,565 ounces fine gold were received at the Dominion of Canada assay office, Vancouver, including 34,960 ounces from British Columbia, 49,128 ounces from Yukon Territory, 305 ounces from Alberta, and 6,172 jewellery and dental scrap. These deposits contained 18,037 ounces fine silver. The net amount paid to depositors during the year was \$3,133,591, an increase of \$650,775 over the previous year's figure. Two hundred and sixty-six ingots containing 93,461 ounces fine gold and 18,692 ounces fine silver were received at the Mint from that office; these ingots, resulting from the melting of individual deposits, showed on assay the usual close agreement with the values as originally determined by the Vancouver office. Mr. Alexander Kaye retired under the Superannuation Act on the 1st December after thirty years' service as Assayer, having throughout his long term of office discharged the responsible duties of his position to the complete satisfaction of the heads of the departments under whom he served. He was succeeded by Mr. V. R. Thirkell as Assayer, Grade 2, and two Assistant Assayers were added to the staff of the office.

### GENERAL.

Officers of the Auditor General's Department conducted, in March, the stock-taking required by the Act establishing the Royal Canadian Mint.

Dr. R. W. Boyle and Dr. G. S. Whitby, of the National Research Council, and Mr. W. B. Timm of the Department of Mines, who were appointed Assay Commissioners, under the Currency Act, for the purpose of ascertaining that the coins struck during the year 1935 were coined in accordance with the provisions of the Act, met at the Mint in the first week of May, and found by their verdict that all the silver coins, there being no gold coins, in the Pyx were within the prescribed remedies of weight and fineness.

Two thousand, two hundred and ninety-two visitors, including parties of students, were shown over the works.

Appendix A shows the transactions in gold bullion since the opening on the 2nd January, 1908, of the Mint in Ottawa, and in Appendix B details are given of the issues of coin in Canada.



## THE NEW REFINERY.

When the Ottawa Mint was established in 1908 as a Branch of the Royal Mint the annual output of gold in Canada was under 500,000 ounces fine, most of it mined in British Columbia and the Yukon, and finding its way to the United States Assay Office in Seattle. There was no indication then that the Dominion was to become for a time the second largest world producer, nor that the province of Ontario was to assume the commanding position in the gold-mining industry which it subsequently attained, and the plans of the Mint consequently provided for refining on a very small scale. During the World War the Dominion Government at the request of the British Government undertook to refine large quantities of South African gold destined for New York and brought here by routes more or less safe from the submarine menace, and to this end a Refinery, intended only as a temporary structure, was hastily erected in the Mint enclosure, and in the years 1916-1918 over 19,000,000 ounces gross were refined in this temporary structure on account of the Bank of England. By the time this special work was no longer required Canadian gold was beginning to come in in ever increasing quantity, and, as was the case with the Australian Branch Mints, the Ottawa Mint was recognized by the producing mines as the most convenient market for realization of their product, and thus gradually to its original function of coinage was added the work of refining Canadian gold, something not contemplated on its first establishment. As the Canadian gold deposited continued to increase, the inadequacy of the old refining plant became more and more apparent; prevention of loss of metal, efficient working, and proper supervision presented increasing difficulties, and frequent representations were made as to the need for a new building with modern equipment. In 1934 the Government approved of the erection of a new Refinery, and in the Estimates for 1935-36 an appropriation for this work was included.

Mr. H. Gordon Hughes, A.R.I.B.A., was appointed architect, and I am indebted to him for the following description of the new building, and for the basement and first floor plans reproduced in Plates II and III. A general view of the Refinery from the Lady Grey Drive is shown in Plate I (Frontispiece).

"The construction of the new Refinery of the Royal Canadian Mint, the general contract for the erection of which was let to Messrs. H. Dagenais, Ltd., of Ottawa, was started in March, 1935, and was completed by June, 1936. The site is triangular and adjacent to the main buildings of the Mint. It is bounded on the northwest by the cliff above Lady Grey Drive, on the south by the Mint buildings, and the front or northeast by Sussex street. The building is Gothic in character to harmonize with the existing buildings, the walls being of local Nepean Sandstone shoddy and the cut stone Quebec granite, following the materials used in the old part. The windows are steel casement centrally pivoted. The roof is tar and gravel, and all copper flashing is painted with a rubber base paint to protect it from chlorine fumes. The plan of the building is "L" shaped, determined by the shape and size of the site, and was designed as a wing of the main building and kept as a subsidiary of it. A bridge at the second floor forms a connecting passage between the two buildings, and the entrance door to the Refinery is below it.

"The planning of the various units of the building was determined by the travel of the gold, with the General Office (Plate IV) and Vault as the central point from which the ingots leave and return. The General Office is so located that it controls a view of the entrance of the building, and double glazed windows give a view of the Rough Gold Melting Room and the Sampling Room. The above rooms have sound insulated ceilings to absorb the noise of the furnaces. This insulation is obtained by 4 inches of rock wool held in place by perforated steel plates, approximately 40 holes per square inch.

"The Trucking Space is located beside the main entrance and connected to a freight elevator, which transports all bullion, barrels of sweep and stores between the different floors as required.

"The Chlorination Room is approximately 50' 0" x 80' 0" with the fume chamber and two banks of furnaces in the centre. Off this room is the Sweep Plant, three rooms one above the other. The sweep is carried to the second floor by elevator, processed and stored in the basement. Off these rooms again are the two Cottrell units, one above the other. The gases from the furnaces are carried to these units by means of ducts located in the basement. The main duct, into which the subsidiary ducts flow, is built of reinforced concrete, square on the outside and circular inside, lined with two layers of firebrick.

"The Silver Chloride Reduction Rooms are equipped with three sludge tanks. These tanks are made with a steel shell and lined with three ply of rubber and finished with acid resisting brick set in a sulphur compound and rubber expansion joints.

"The aggregate, both fine and coarse, for the concrete floor finish was of the hardest trap rock available, placed with a power float. The walls of the various melting rooms were lined with 8" x 12" glazed coloured wall tile. All doors are Hollow Metal and are equipped with latches and dead locks. Those through which gold and silver pass are 4' 0" wide to allow for trucking. Checker plates are set in the concrete floors where travel is exceptionally heavy and also in front of the furnaces to facilitate gold recovery.

"The men's locker room, showers, dining room and kitchen are in the basement. The switch-board rooms, compressor room and various storage rooms are also located here. The second floor of the building, along the Sussex street elevation, was allotted for a future electrolytic refining system, if and when required."

The Gold Melting Room (Plate V) measures 54 feet by 29 feet and has six furnaces, together with complete equipment for handling pots from fire to moulds and for recovery of values from slags. Separated from it by a glass partition is a room with electrically driven punches and other fittings where clips are removed from ingots and wrapped. The Chlorination Room (Plate VI) has down the centre a double bank containing in all 24 chlorination furnaces and 4 melting furnaces, with projecting hoods, communicating with the main flue system, to take care of all fumes. There are also four tilting furnaces (Plate VII), each with a capacity of 10,000 ounces, and space is provided in cabinets ranged on the end wall for 24 cylinders of chlorine. Two furnaces are installed in the Silver Melting Room, which has an area of 22 feet by 30 feet. The Chloride Reduction Room, 54 feet by 24 feet, has one tank 16' 6" by 9' 6" by 2', with two settling tanks (Plate VIII), in the basement, of the same area but 4 feet deep, and is also equipped with six small reduction tanks of Doulton chemical ware, and 30 jars for preliminary treatment with nascent chlorine.

The treatment of sweep, crushed pots, etc., is carried out, according to the nature of the material, in a Chilean mill with a 4' 6" a No. 3 Eureka-Ideal conical mill, and a 2' Hardinge ball mill, and the crushed material is passed through a conical rotary mixer of 4,000 pounds capacity. All the air from the grinding, mixing and sampling rooms is delivered to the electrical precipitator by a special ventilating system worked by an exhaust fan with a capacity of 3,000 cubic feet of air a minute, thus keeping these rooms entirely free from dust.

After careful consideration of various methods of treatment of the fumes from the several operations of melting and refining, it was decided to adopt the Cottrell system of electrical precipitation, and a contract was let to the Western Precipitation Company of Los Angeles, now operating in the Dominion as the



Precipitation Company of Canada, Limited, for the installation of a Cottrell Electrical Precipitator, in two units, with a rated capacity of 35,000 cubic feet of air a minute. Under its contract the company guarantees an extraction of not less than 98 per cent of all solid matter in the gases treated, and the tests made from time to time show that this efficiency is more than maintained even when the volume of gas passing through exceeds the nominal rating. No objectionable fumes are now discharged into the atmosphere, and the minute particles of metal formerly carried by these are now recovered.

All gases and fumes produced are delivered to the precipitator through the main duct (Plate IX) which is 75 feet long, the diameter tapering from 6 feet 6 inches to 6 feet. Connected to this main duct are five trunk lines operated by variable speed motors with tex rope drive, two leading from the hoods in the Chlorination Room, and one each from the flue in that room, from the Gold Melting Room and the Silver Melting Room. In consultation with Messrs. Sheldons, Limited, of Galt, Ontario, contractors for the complete ventilating system, motor capacity and duct areas have been calculated for the maximum load, while changes in the volume of air to be handled are taken care of by the variable speed of the motors. The air compressor (Plate X) together with the plant for supplying cooled drinking water throughout the building is situated in the basement.

As the various units became available, operations were gradually transferred from the old to the new building without any break in the routine work of melting and refining, an achievement possible only by the loyal co-operation of the whole staff. Nine months' actual experience has shown that in the new Refinery all operations, from the initial melting of the bullion received from the mines to the delivery of the finished product in the form of fine gold and fine silver, can be expeditiously and economically carried out, with a particularly high rate of efficiency in the recovery of values. It is only fitting that I should record here the valuable service rendered by Mr. H. E. Ewart, Superintendent of the Mint, to whose unremitting supervision of every detail, and resourcefulness in solving the many structural and mechanical problems being constantly presented, the satisfactory completion of the building and installation of the plant must be credited. With his name I would link those of Mr. A. L. Entwistle, Chief Chemist and Assayer, and Mr. P. W. Bond, Refinery Superintendent, whose knowledge and practical experience of metallurgical practice were invaluable factors in achieving the objective of a modern Refinery capable of meeting any possible Canadian demand for years to come.

I am, Sir,

Your obedient Servant,

J. H. CAMPBELL,

*Master, Royal Canadian Mint.*

## APPENDIX A.

SUMMARY OF TRANSACTIONS IN GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1908, to its dis-establishment on the 30th November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1936.

Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	Value Coin and Bullion
	Ozs.	\$	\$	Ozs. Fine	\$
1908 to 30th Nov., 1931...	34,321,068.750	591,419,217.02	7,923,878.73	28,141,076.806	589,651,570.24
1931—1st to 31st Dec.....	299,973.100	5,100,968.08	.....	189,512.838	3,917,577.86
1932.....	3,520,276.570	58,491,549.39	.....	2,873,221.290	59,394,754.05
1933.....	3,331,905.174	53,819,014.01	.....	2,589,648.765	53,532,789.33
1934.....	3,888,848.540	62,201,080.02	.....	3,038,018.961	62,801,423.68
1935.....	3,996,131.927	65,297,776.55	.....	3,177,497.360	65,684,697.95
1936.....	4,552,289.960	74,487,536.98	.....	3,625,548.842	74,946,744.64
	53,910,494.021	910,817,142.05	7,923,878.73	43,634,524.862	909,929,557.75



## COIN ISSUED IN CANADA

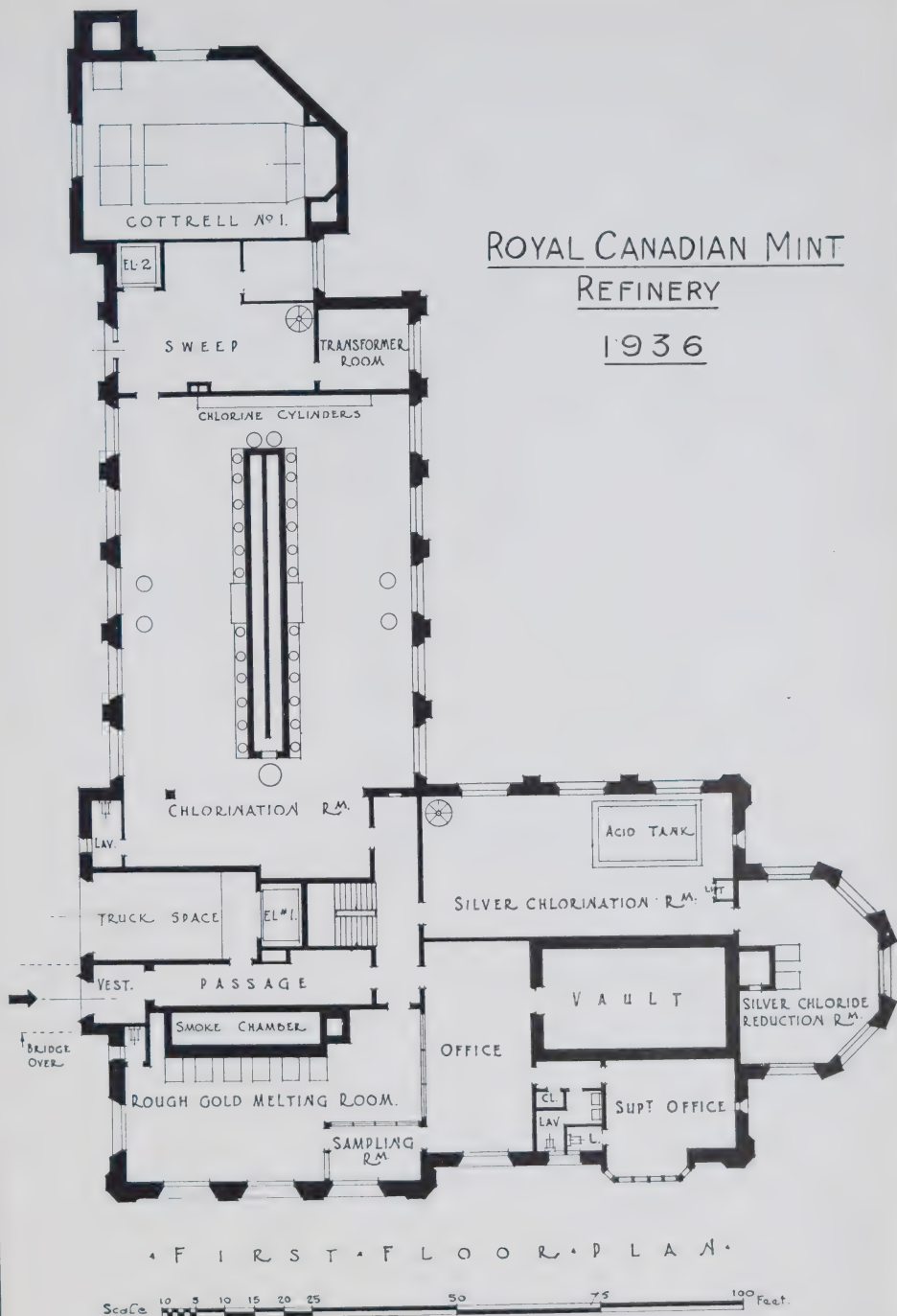
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# ROYAL CANADIAN MINT REFINERY

1936

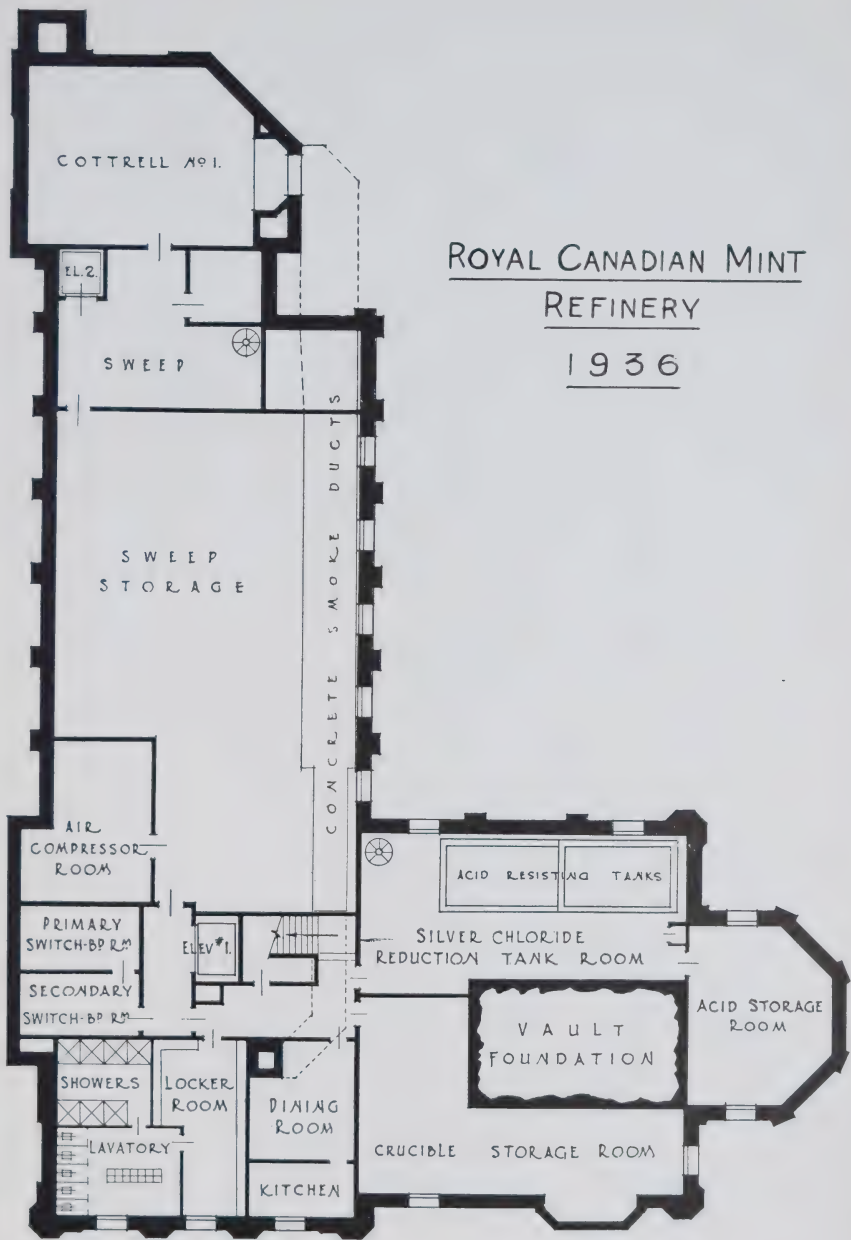


H. GORDON HUGHES, A.R.I.B.A.  
ARCHITECT

Main Floor Plan





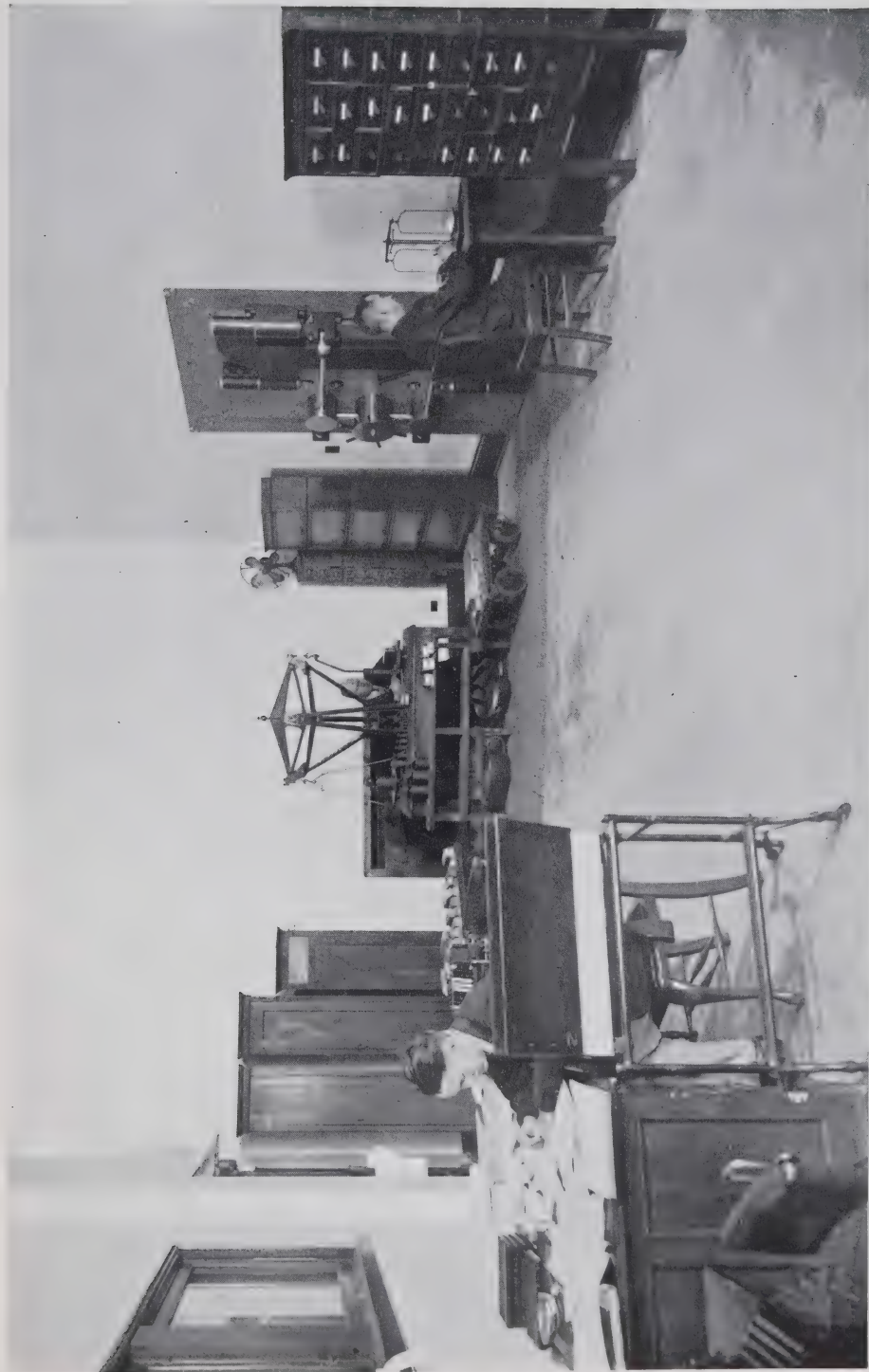


B A S E M E N T F L O O R P L A N .

Scale 0 5 10 15 25 50 75 100 Feet

Basement Plan

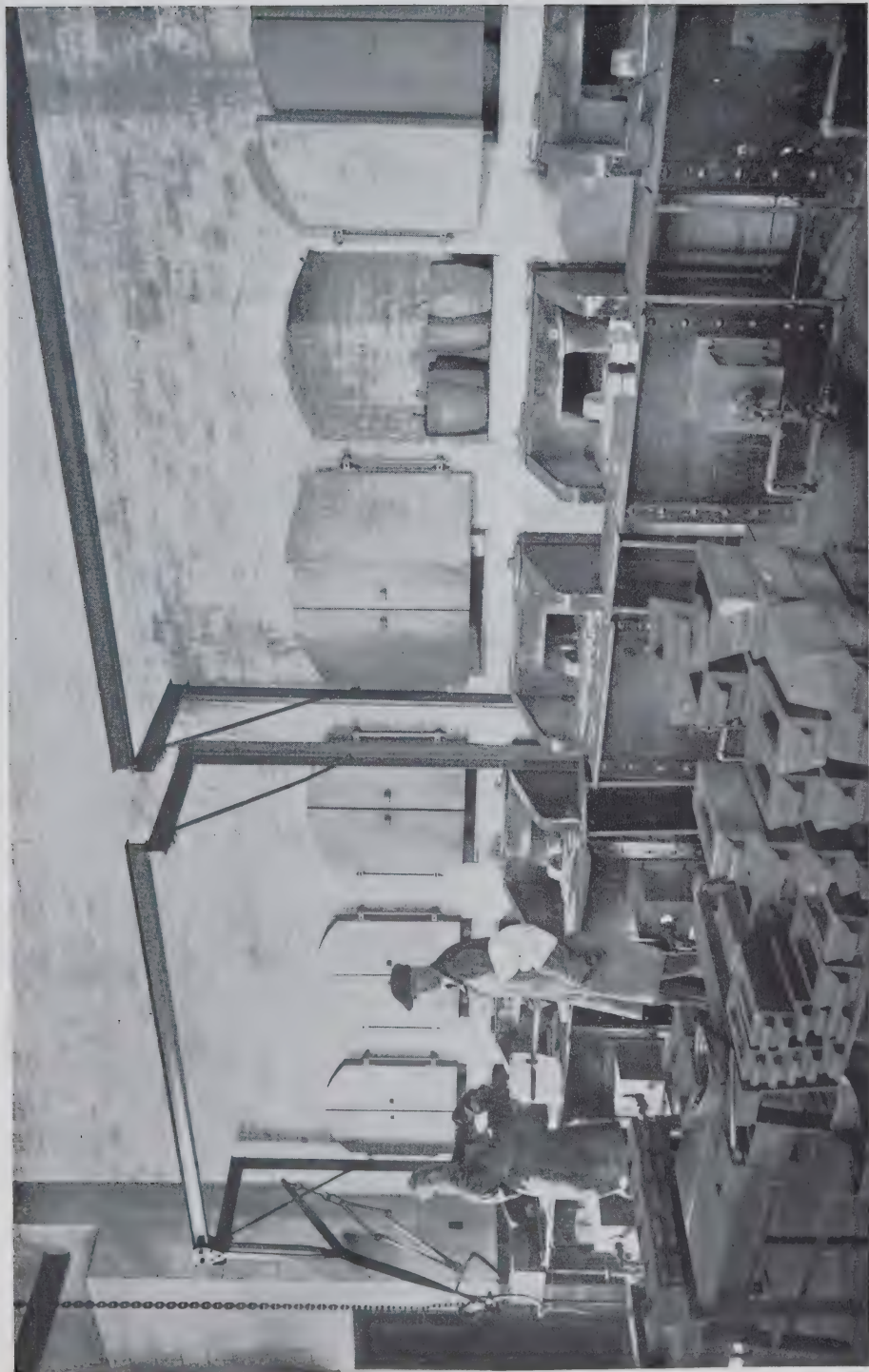




Office



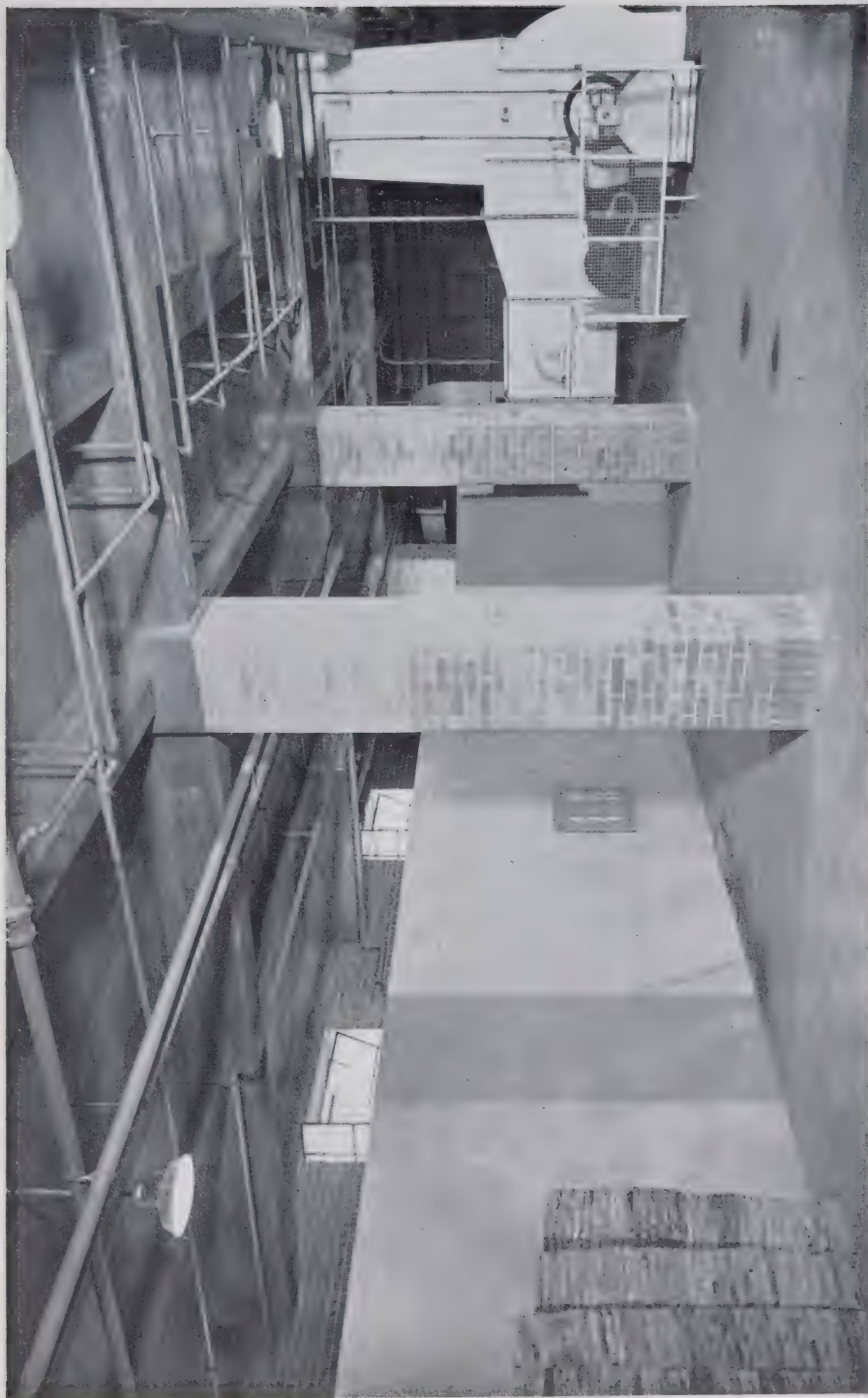




Gold Melting Room







Basement showing main flue, branch from chlorination room flue, and one fan with motor





Chlorination Room, showing one side of bank of chlorination furnaces, with hoods and top of flue







Fine gold being poured from tilting furnace

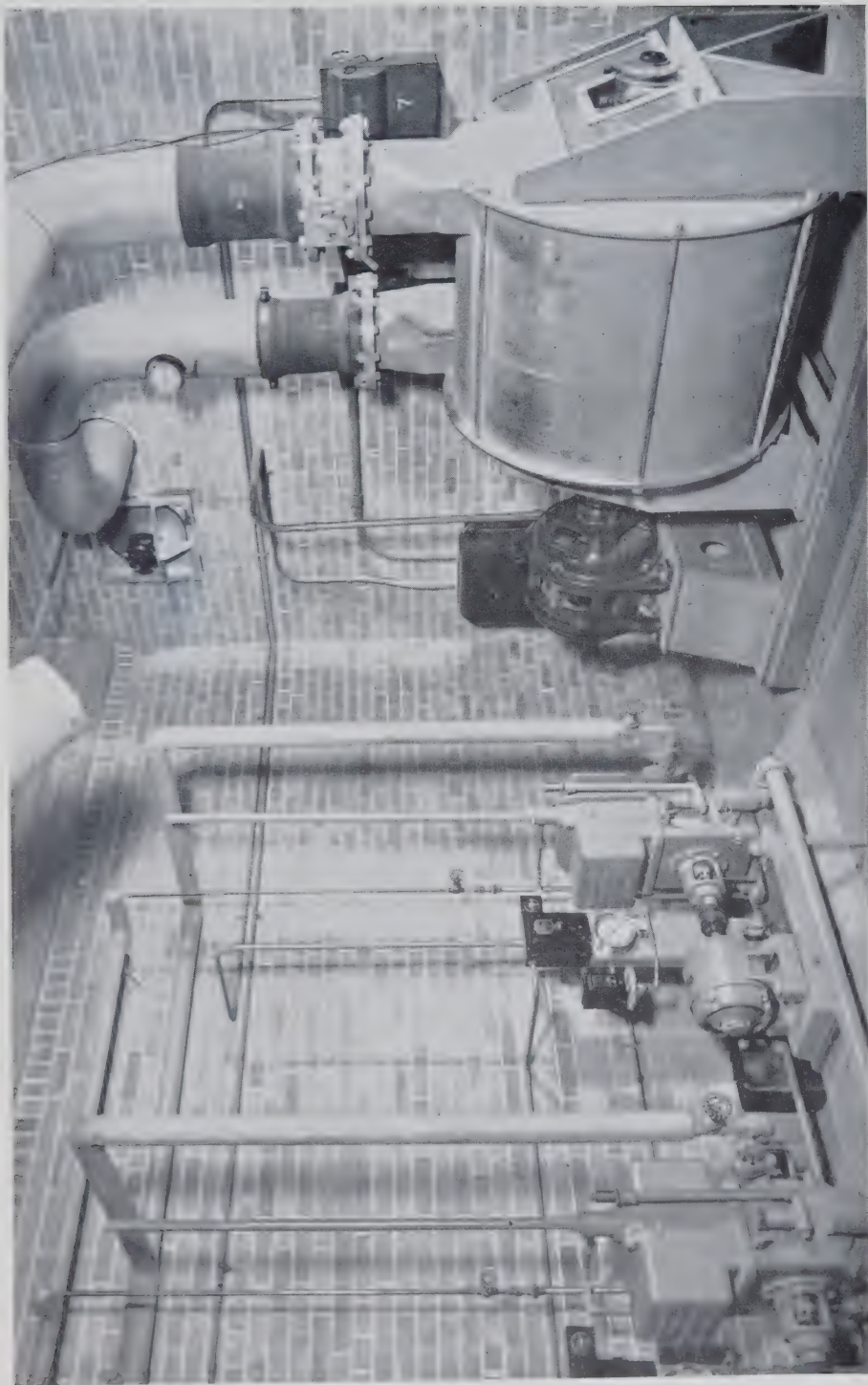






Settling Tanks in Chloride Reduction Room





Air Compressor and Water Cooling and Circulating Plant











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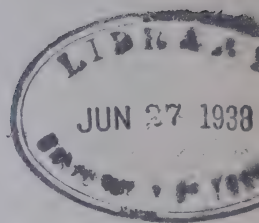
Government  
Publications

DEPARTMENT OF FINANCE

# ROYAL CANADIAN MINT

## REPORT

For the Calendar Year  
1937.



Published by Authority of the HON. C. A. DUNNING,  
MINISTER OF FINANCE

OTTAWA  
J. O. PATENAUDE, I.S.O.  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1938







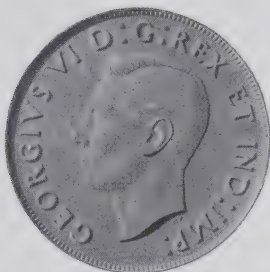
PLATE I



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DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year  
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1938





## EXPLANATION OF PLATES

### PLATE I (Frontispiece)—First Silver Dollars and New Series of Coins, 1937.

Fig. 1.	Silver Dollar.....	1935
2.	Silver Dollar.....	1936
3 & 4.	Silver Dollar.....	1937
5.	50 cents, Silver.....	1937
6.	25 cents, Silver.....	1937
7.	10 cents, Silver.....	1937
8.	5 cents, Nickel.....	1937
9.	1 cent, Bronze.....	1937

### PLATE II—Types of Canadian Coinage since Confederation.

Fig. 1 & 2.	25 cents, Silver.....	1870
3.	10 cents, Silver.....	1870
4.	5 cents, Silver.....	1870
5 & 6.	1 cent, Bronze.....	1876
7.	5 cents, Silver.....	1902
8.	50 cents, Silver.....	1902
9.	5 cents, Silver.....	1903
10 & 11.	1 cent, Bronze.....	1908
12 & 13.	1 cent, Bronze.....	1911
14.	50 cents, Silver.....	1911
15 & 16.	50 cents, Silver.....	1912
17.	1 cent, Bronze.....	1920
18.	5 cents, Nickel.....	1922

### PLATE III—Provincial Coins.

Fig. 1 & 2.	20 cents, Silver, Canada.....	1858
3 & 4.	1 cent, Bronze, Canada.....	1858
5 & 6.	20 cents, Silver, New Brunswick.....	1862
7.	1 cent, Bronze, New Brunswick.....	1864
8 & 9.	$\frac{1}{2}$ cent, Bronze, New Brunswick.....	1861
10 & 11.	1 cent, Bronze, Nova Scotia.....	1864
12.	$\frac{1}{2}$ cent, Bronze, Nova Scotia.....	1861
13 & 14.	1 cent, Bronze, Prince Edward Island.....	1871



# ROYAL CANADIAN MINT,

Ottawa, 17th March, 1938.

The Honourable  
The Minister of Finance,  
Ottawa, Ontario.

SIR:

I have the honour to submit the following Report on the operations of the Royal Canadian Mint during the calendar year 1937.

From a numismatic point of view, 1937 will long be remembered for the first important change since Confederation in the general type of Canadian subsidiary coins which now, in addition to the new series of reverse designs, referred to in a subsequent section, have on the obverse the uncrowned Royal effigy, hitherto reserved for the coins of Great Britain, instead of the crowned effigy of former reigns. When in 1935 consideration was being given to the design of the first silver dollar, the legend on the obverse of which included a reference to the twenty-fifth anniversary of the Accession of His late Majesty King George V, an informal suggestion that the Royal effigy on the new coin should be uncrowned was not favourably received, but I may now be permitted to say that the portrait of His former Majesty, King Edward VIII, approved for the new series of Canadian coins, but never actually used, was uncrowned. The uncrowned portrait now appears on the coinage of Great Britain, Canada, Australia, New Zealand, and South Africa, the crowned effigy being retained for the coinage of British India and of the British colonies and possessions.

The interest taken in the new coins was doubtless responsible in some degree for the continuous demand from May till the close of the year for all denominations, the issues of silver coin alone being two and one-half times the average annual amount of the previous ten years. Since its first issue in 1922, the demand for nickel coin has been fairly constant, but there has been a remarkable increase in the amount of bronze coin required, the average of the last ten years being about 50 per cent in excess of that of the preceding twenty years. This increase in the use of cents may be attributed to changes in retail trading, especially in the Western Provinces where, not so many years ago, the lowest unit governing prices was five cents; now, an examination of any retail price-list shows the replacement of the nickel unit by the bronze unit. The following table sets out the issues in 1936 and 1937:—

Denomination	Coin Issued in	
	1936	1937
	\$	\$
SILVER COIN—		
1-dollar.....	306,100	240,900
50-cents.....	19,300	96,000
25-cents.....	242,000	711,900
10-cents.....	241,800	273,400
	809,200	1,322,200
NICKEL COIN—		
5-cents.....	202,600	251,100
BRONZE COIN—		
1-cent.....	87,200	105,400
	1,099,000	1,678,700

In addition to the issues shown in the table there were sold through the Bank of Canada 1,095 sets of specimen coins of the new design.

I am glad to report that definite steps are now being taken, by co-operation between the Bank of Canada and the Chartered Banks, to free Canadian currency from the objectionable feature of the simultaneous circulation of quite different coins having the same nominal value, a scheme having been inaugurated in November for the complete withdrawal from circulation of the silver 5-cent pieces and the large bronze cents. The first stages in this withdrawal are reflected in the following summary of the worn and mutilated coin accepted during the year, the last column showing the net increase in circulation:—

	Withdrawn	Net Increase
	\$	\$
Silver Coin.....	376,416.50	945,783.50
Nickel Coin.....	2,630.05	248,469.95
Bronze Coin.....	6,402.02	98,997.08

### COIN DESIGNS.

In my last Report I outlined the steps taken to procure new reverse designs for all subsidiary coins with the exception of the silver dollar. It was finally decided to commission Mr. Emanuel Hahn, R.C.A., of Toronto, to prepare the models for the 25-cent and 10-cent pieces, with a caribou head and a fishing schooner for the subjects, while Mr. Kruger Gray, of England, was entrusted with the models of the 50-cent piece, showing the armorial bearings of Canada with supporters, the nickel 5-cent piece with the beaver as subject, and the cent having a maple twig. Meantime, the design of Mr. T. H. Paget for the obverse, bearing the uncrowned effigy of His Majesty, King George VI, had been approved by the Government, and the work of preparing all the master dies from the models forwarded to the Royal Mint, London, was put in hand, but, owing to the great pressure of work in the Die Department of that Mint, it was agreed with the late Sir Robert Johnson, Deputy Master and Comptroller, that, in order to have as many of the new coins as possible available for the 12th May, the date fixed for the Coronation, the co-operation of the Paris Mint should be enlisted. It is interesting to recall that this was the second occasion on which the technical excellence of a product of the Ottawa Mint was due to the team-work of the Mints of the two countries to which Canada traces her racial origins, as the obverse die of the medal struck in 1927 to commemorate the sixtieth anniversary of Canadian Confederation was cut in the London Mint and the reverse die in the Paris Mint. The reverse design by Mr. Hahn approved for the silver dollar in 1935 continued to be used, and of the master dies for the new series London is responsible for the one dollar obverse and the 50-cent reverse, all the others being prepared in the Paris Mint, and it is most gratifying to those charged with the final production of the coins under such unusual conditions to learn that the designs and workmanship have met with general approval. The Proclamation of the 6th April, 1937 (Appendix



C), determined the designs of the coins, fixing the 12th May as the date when they became current, and, notwithstanding the many difficulties attending the work, it was found possible to have the four lower denominations available at all Agencies of the Bank of Canada on the prescribed date, and to have the series complete by the end of June.

The history of the official coinage of what is now included in the Dominion of Canada only goes back to 1858, before which date the currency consisted of British and other coins supplemented by tokens issued by Banks and by private firms and individuals. The 1858 issue was struck in England for the Province of Canada and comprised 20-cent, 10-cent and 5-cent pieces in silver, and copper cents. Silver coin in 20-, 10- and 5-cent denominations was struck for New Brunswick in 1862 and 1864, cents in 1861, 1862 and 1864, and half-cents in 1861. For Nova Scotia cents and half-cents were struck in 1861, 1862 and 1864, and for Prince Edward Island cents in 1871, the latter being the last provincial coinage. The first silver coins issued by the Dominion of Canada were received from the Royal Mint, London, in 1870. These were of the nominal value of 50 cents, 25 cents (replacing the earlier provincial 20 cents), 10 cents and 5 cents, and had for the obverse the effigy of Queen Victoria, coroneted on the two larger coins and laureated on the two smaller, with the inscription "VICTORIA DEI GRATIA REGINA/CANADA", and for the reverse the denomination and date of the year within an entwined wreath of maple leaves surmounted by a crown. The first cents issued after Confederation were of bronze and appeared in 1876. They had the same obverse as the silver coins, but on the reverse the date and value were shown surrounded by maple leaves entwined serpentine fashion within two beaded circles. During the reign of King Edward VII the Imperial crown replaced the Tudor crown appearing on the reverse of the earlier coins, and the word "CANADA" was transferred from the obverse to the reverse side of the silver coins; a similar change was made in 1911 in the bronze coins. There were three important amendments of the Currency Act in the following reign; the first, in 1919, reducing the weight of the bronze cent from  $87\frac{1}{2}$  grains to 50 grains, the second, in 1920, reducing the millesimal fineness of the silver coinage from 925 to 800, and the third, in 1921, giving currency to a 5-cent piece of pure nickel. The latter coin, first issued in 1922, has replaced the silver 5-cent piece which has not been coined since 1920. It will thus be seen that, with the exception of a new design for the reverse of the small cent and of the new nickel coin there has been no important change in the general type of Canadian coins until the first issue of a silver dollar in 1935, described in my Report for that year, and the inauguration of the present series, though there have been certain minor variations such as the omission of the "DEI GRATIA" from the obverse legend of the 1911 issue. Plate I, printed as a frontispiece, illustrates the present series of coins, and plates II and III show specimens of the earlier subsidiary coins.

## GOLD BULLION.

6,019 deposits of gold bullion weighing 4,845,870 ounces were received from Mining Companies and sundry persons, and 185 deposits weighing 114,093 ounces were received from the Dominion of Canada Assay Office, Vancouver, B.C. The total gross weight, including mutilated gold coin was 4,959,971 ounces, or 170·9 short tons, which contained by assay 3,933,453 ounces fine gold and 549,920 ounces fine silver. The average price paid for gold was \$34·9655 the ounce fine and for silver 43·7583 cents the ounce fine, the net value paid to depositors by cheque, after deducting Mint and handling charges and postage collected, being \$132,969,981, in addition to 4,161 ounces fine

gold issued to manufacturers in part payment of deposits. Details of deposits distributed as to origin are shown in the following table:—

Source	Gross Weight	Fine Gold	Fine Silver
	Ozs.	Ozs.	Ozs.
Ontario Mines.....	3,260,622.225	2,565,456.794	381,276.01
Quebec Mines.....	993,421.450	848,391.511	73,103.99
B.C. Mines.....	434,469.590	339,600.992	66,876.65
Manitoba Mines.....	132,832.850	88,499.409	15,143.57
Yukon Mines.....	57,697.845	44,862.161	6,362.59
Nova Scotia Mines.....	21,166.650	19,387.604	639.52
Alta. and Sask. Mines.....	1,623.710	1,220.925	223.51
Total Mines.....	4,901,834.320	3,907,419.396	543,625.84
Jewellery, Scrap, etc.....	62,465.060	27,150.786	6,730.48
Foreign Gold Coin.....	311.225	279.202	.99
Mutilated Gold Coin.....	7.828	6.992	
Foreign Mines.....	6.300	5.321	.85
Totals.....	4,964,624.733	3,934,861.697	550,358.16

9,759 trade bars (400-ounce ingots assaying over 995.0) containing 3,916,572 ounces fine were delivered to the Bank of Canada, 15,756 ounces fine were issued to manufacturers and others in the form of granulated, small bars, and medals, and the sweep sold contained 5,582 ounces fine. Of the silver extracted from deposits, delivery of 471,328 ounces was made to the Bank of Canada under the London Agreement, the sweep sold contained 43,787 ounces fine, and sundry issues contained 79 ounces fine.

### OPERATIVE DEPARTMENT.

The work of the Melting House and Coining Room is summarized in the following table:—

	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Pieces
SILVER—				
1 dollar.....	449,372	319,433	168,791	241,002
50 cents.....	123,524	118,915	71,983	192,016
25 cents.....	888,982	807,482	555,928	2,843,498
10 cents.....	448,887	327,808	209,611	2,691,332
Total Silver.....	1,910,765	1,573,638	1,006,313	5,967,848
NICKEL—				
5 cents.....				4,593,263
BRONZE—				
1 cent.....	Lbs. 126,633	Lbs. 116,336	Lbs. 80,506	10,719,054
Totals.....	Short Tons 128.83	Short Tons 112.12	Short Tons 74.75	21,280,165



PLATE II



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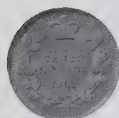
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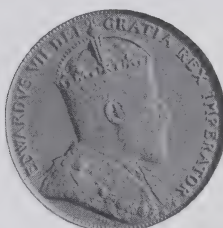
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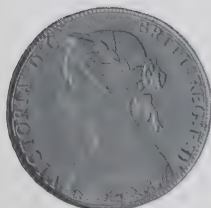
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In addition to the coinage shown above, 1,095 complete specimen sets of the new series of coins were struck and packed in boxes.

Worn and mutilated silver coin weighing 285,380 ounces was melted into ingots, 140 ounces fine gold proof plate and 68,455 lead discs were produced for the Assay Office.

856 matrices, punches and dies were made for coinage purposes, and two steel signature dies were cut for the Comptroller of the Treasury. Two gold medals were struck and engraved for the Royal Society of Canada, and 40 silver medals, mounted and engraved with the recipients' names, were issued to the Commissioner of the Royal Canadian Mounted Police.

Again the staff under the Foreman of Mechanics was fully occupied, putting in all the time that could be spared from efficiently maintaining the electrical, mechanical, and heating plant in dismantling the equipment of the old Refinery and Melting House, using as much of this as possible in the new building or for other purposes. Adjustments and additions were called for as more experience was gained in the new Refinery, but it is pleasant to report that these were all of a comparatively minor character.

### ASSAY OFFICE.

The Chief Chemist and Assayer reports as follows:—

The number of assays made from the 1st January to 31st December, 1937, was as follows:—

GOLD—		
Refinages.....	5,317	
Rough Gold.....	30,051	
Proofs.....	2,962	
Parting Proofs.....	798	
Parting Buttons.....	11,762	
Miscellaneous.....	1,213	
		52,103
SILVER—		
Standard Bars.....	2,864	
Proofs.....	722	
Pyx.....	603	
Fine Silver Bars.....	972	
Miscellaneous.....	715	
		5,876
MISCELLANEOUS—		
Mint Sweeps, Residues, etc.....	372	
Assays in Connection with Cottrell Precipitates.....	280	
Marking Act.....	67	
Suspected Counterfeit Coins.....	2	
Commercial.....	267	
Other Metal Determinations.....	55	
		1,043
Total.....		59,022

Representative samples taken from 52,240 pounds of nickel five-cent blanks supplied to the Mint were examined for composition and hardness and the blanks were found to comply in all respects with the specifications.

The mean finenesses of silver coinage struck during 1937 were as follows:—

Denomination	Standard Fineness	Mean Fineness
1 dollar.....	800.0	799.76
50 cents.....	800.0	800.30
25 cents.....	800.0	799.90
10 cents.....	800.0	799.94

Two fine gold trial plates and two fine silver trial plates were made and fixed against the old trial plates. Three and one-half ounces of fine gold trial plate and forty-four ounces of fine silver trial plate were sold during the year.

A quantity of gold plated rings, which, on examination were found not to comply with the Marking Act, were destroyed for the Department of Trade and Commerce. An examination of exhibits in connection with counterfeit coinage was made in the department for the Royal Canadian Mounted Police.

A time clock, in connection with a magnetic contactor which throws in a switch in the circuit of the 550-volt A.C. current to the two electric cupellation furnaces, has been installed. This clock is timed to switch on the full power at seven o'clock in the morning which brings the furnaces to a sufficient temperature for work to commence immediately on the opening of the Office. Previously, owing to the increased number of assays, it was found necessary to leave half power on the furnaces during the night to expedite the work. This installation reduces the cost of power considerably.

In dismantling the old refinery, a large quantity of material (bricks from furnaces, flues, etc.), was obtained, which, as mentioned in last year's report, was not high enough in values to be sold economically. Fourteen tons of this material were sent to the Ore Dressing Plant of the Bureau of Mines to be concentrated. They were ground and subjected to a combination of blanket and flotation concentration producing a concentrate of one and one-half tons which contained approximately 80 per cent of the original values. This concentrate was barrelled and sold to smelters.

A test of three weeks' duration was made by filtration of metered volumes of the gases leaving the Cottrell installation in the refinery (operating on normal routine work) with a gas volume passing through the precipitator of 21 per cent over the rated capacity. This test confirmed the acceptance test, viz:—98 per cent extraction of the gold and silver values present. The experiments on the extraction of gold from the Cottrell precipitate were continued from last year. Over sixty experimental tests were made on 100 gramme samples and from the best results obtained two bulk tests were made on 30-pound and 50-pound lots. The extraction of the gold content was found to be 96.3 and 94.3 per cent respectively, leaving for sale a residue which was approximately 55 per cent of the original weight of precipitate treated, and which contained all the silver and lead, and a little gold. Approximately five and one-half tons of Cottrell precipitate are produced per annum at the present rate of refining. The principle of the process is the solution of the gold, which is present as gold in a finely divided state, with chlorine produced from bleaching powder and sulphuric acid, leaving a residue containing all the silver and lead as chloride and sulphate respectively. The gold in solution as chloride is precipitated with sulphate of iron and the copper, tellurium and bismuth can be subsequently recovered.

## REFINERY.

The average assay of the deposits in Ottawa was gold 739.17, and silver 109.81, and of the bullion received from the Assay Office in Vancouver, gold 787.32, and silver 156.04. The total weight melted was 4,959,963 ounces of which 4,015,058 ounces was refined by the Miller chlorine process, 929,476 ounces poured directly into trade bars, and 15,429 granulated. The trade bars produced weighed 3,923,516 ounces with an average assay of 997.41, and the assay of the granulated gold, the form in which the metal is supplied to manufacturers, was 999.76. Silver bullion weighing 478,294 ounces 999 fine was delivered to the Mint Office.

To obtain concordant assays it was necessary to remelt 187,048 ounces, and to subject 19,334 ounces to special treatment.



Sweep weighing 68 tons and containing 5,582 ounces fine gold and 43,787 ounces fine silver was prepared, sampled, and packed for sale, and 1,878 ounces fine gold and 1,560 ounces fine silver were recovered as concentrates.

During the year the old Refinery was dismantled after sand-blasting the interior and treating every possible repository of metal for recovery of values, and was subsequently demolished, and the site, together with the area surrounding the new Refinery, sold by the Federal District Commission. The former gold melting house was also dismantled, and its renovation is now almost completed, the ground floor being fitted up as Engraver's quarters, die shop, and blacksmith's shop, and the upper floor as much needed accommodation for the operative staff, containing kitchen, dining room, locker room and showers.

### DOMINION OF CANADA ASSAY OFFICE, VANCOUVER, B.C.

There was very little change in the amount of bullion passing through this Office as compared with the previous year, 1,926 deposits, weighing 118,747 ounces gross having been received, distributed as under:—

Source	Gross Weight	Fine Gold	Fine Silver
	Ozs.	Ozs.	ozs.
British Columbia.....	50,559	41,009	6,360
Yukon Territory.....	57,673	44,841	10,274
Alberta and Saskatchewan.....	561	420	39
Scrap Gold.....	9,954	4,966	1,568
Totals.....	118,747	91,236	18,241

The total amount disbursed in payment for these deposits was \$3,157,230. Bullion deposited at the Assay Office in Vancouver is subject to the same scale of charges as if consigned directly to the Mint, and is after valuation melted into suitable ingots and consigned to Ottawa. The monthly consignments in 1937 comprised 185 ingots weighing 114,093 ounces containing 89,828 ounces fine gold and 17,803 ounces fine silver, and check assays once more confirmed the accuracy of the work of the Office.

Seven determinations of contents of jewellery were made for the Department of Trade and Commerce under the provisions of the Precious Metals Marking Act.

### GENERAL.

The inspection of the store of bullion and coin provided for in the Act establishing the Royal Canadian Mint was carried out in March by officers of the Auditor General's Department.

In May the Assay Commissioners appointed under the Currency Act, Mr. W. B. Timm of the Department of Mines and Resources, and Drs. D. C. Rose and D. F. Stedman of the National Research Council, met at the Mint, when the silver coins reserved for the Trial of the Pyx were produced to them, and they found by their verdict that all these coins were within the prescribed remedies of weight and fineness.

Appendix "A" shows the transactions in gold bullion since the opening on the 2nd January, 1908, of the Mint in Ottawa, and in Appendix "B" details are given of the issues of coin in Canada. The Proclamation giving currency to the new series of coins appears as Appendix "C".

I am, Sir,

Your obedient Servant,

J. H. CAMPBELL,  
*Master, Royal Canadian Mint.*

## APPENDIX A.

SUMMARY OF TRANSACTIONS IN GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1908, to its disestablishment on the 30th November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1937.

Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	Value Coin and Bullion
	Ozs.	\$	\$	Ozs. Fine	\$
1908 to 30th Nov., 1931...	34,321,068.750	591,419,217.02	7,923,878.73	28,141,076.806	589,651,570.24
1931—1st to 31st Dec.....	299,973.100	5,100,968.08	.....	189,512.838	3,917,577.86
1932.....	3,520,276.570	58,491,549.39	.....	2,873,221.290	59,394,754.05
1933.....	3,331,905.174	53,819,014.01	.....	2,589,648.765	53,532,789.33
1934.....	3,888,848.540	62,201,080.02	.....	3,038,018.961	62,801,423.68
1935.....	3,996,131.927	65,297,776.55	.....	3,177,497.360	65,684,697.95
1936.....	4,552,289.960	74,487,536.98	.....	3,625,548.842	74,946,744.64
1937.....	4,959,970.893	81,311,693.75	.....	3,937,910.698	81,403,837.11
	58,870,464.914	992,128,835.78	7,923,878.73	47,572,435.560	991,333,394.86

# APPENDIX B.

## COIN ISSUED IN CANADA

		SILVER							NICKEL	BRONZE	
		Dollar \$	50c. \$	25c. \$	20c. \$	10c. \$	5c. \$	Total Silver \$	5c. \$	1c. \$	1/2c. \$
1858 to 1907	{ New Brunswick, 1861, 2 and 4. Nova Scotia, 1861, 2 and 4. Prince Edward Island, 1871. Rest of Canada, 1858- 1907. }				60,000	25,000	10,000	95,000		20,000	1,114
										26,000	4,000
										10,000	
		1,249,018	5,094,978	150,000	3,040,000	2,926,000	12,459,996		803,315		
		1,249,018	5,094,978	210,000	3,065,000	2,936,000	12,554,996		859,315	5,114	
Totals											
GOLD											
	Sover- eigns £	\$10 \$	\$5 \$								
1908 to 1927	627,834	3,480,360	1,388,060								
1928				7,686,925		4,980,844	3,084,802	18,291,571	814,000	1,224,206	
1929				535,000		326,000		867,000	250,000	92,100	
1930				672,000		325,000		1,081,000	267,000	123,300	
1931				164,000		144,000		326,000	164,500	13,400	
1932				212,000		229,400		475,400	281,000	51,400	
1933				134,000		134,600		287,000	165,000	213,200	
1934				97,000		58,000		155,000	125,000	120,800	
1935				105,100		48,000		172,300	193,000	69,900	
1936				134,400		38,500		601,020	194,000	75,100	
1937				242,000		241,800		809,200	202,600	87,200	
				711,900		273,400		1,322,200	251,100	105,400	
	627,834	3,480,360	1,388,060	15,789,303	210,000	9,864,544	6,020,802	36,942,687	2,907,200	3,035,321	5,114

## APPENDIX C.

## PROCLAMATION

TWEEDSMUIR  
[L.S.]

## CANADA

GEORGE THE SIXTH, by the Grace of God of Great Britain, Ireland and the British  
Dominions beyond the Seas KING, Defender of the Faith, Emperor of India.

TO ALL TO WHOM these Presents shall come:

GREETING:

## A PROCLAMATION

W. STUART EDWARDS,  
*Deputy Minister of Justice, Canada.*

WHEREAS in and by Section Twenty of the Currency Act, Chapter Forty of the Revised Statutes of Canada, 1927, it is provided that Our Governor in Council may from time to time by proclamation, determine among other things the dimensions of and the designs for any coin.

NOW KNOW YE that by and with the advice of Our Privy Council for Canada We do hereby proclaim, direct and determine as follows:

1. The design for the obverse impression on coins of all denominations to be made under the provisions of the said Act shall be Our Effigy with the inscription "GEORGIUS VI D: G: REX ET IND: IMP:'".

2. The designs for the reverse impressions on silver, nickel and bronze coins to be so made shall be as hereinafter set out, viz:

(1) *One Dollar*—A Canoe manned by an Indian and a Voyageur, an islet in the background: above, the word "CANADA" with the Northern Lights; below, the word "DOLLAR" and the date of the year, with a graining upon the edge.

(2) *Fifty Cents*—Between Supporters the Ensigns Armorial of Canada in a shield surmounted by the Royal Crown, "50 CENTS" above and "CANADA" below, with the date of the year and a graining upon the edge.

(3) *Twenty-five Cents*—A Caribou head, "25 CENTS" between the antlers, and surrounded by the word "CANADA" and the date of the year, with a graining upon the edge.

(4) *Ten Cents*—A Fishing Schooner under sail, "CANADA" above and "10 CENTS" below, with the date of the year, and a graining upon the edge.

(5) *Five Cents*—A Beaver; above "5 CENTS" between two maple leaves, and below "CANADA" and the date of the year, with a plain edge.

(6) *One Cent*—A Two-leaved Twig of Maple, "1 CENT" above, and "CANADA" below, with the date of the year, and a plain edge.

AND WE DO FURTHER proclaim and direct that this Our proclamation shall come into operation on the twelfth day of May in the year of Our Lord one thousand nine hundred and thirty-seven.

ALL OF WHICH Our Loving Subjects and all others whom these Presents may concern are hereby required to take notice and to govern themselves accordingly.

IN TESTIMONY WHEREOF, We have caused these Our Letters to be made Patent and the Great Seal of Canada to be hereunto affixed. WITNESS: Our Right Trusty and Well-beloved John, Baron Tweedsmuir of Elsfeld, Knight Grand Cross of Our Most Distinguished Order of Saint Michael and Saint George, Member of Our Order of the Companions of Honour, Governor General and Commander-in-Chief of Our Dominion of Canada.

AT OUR GOVERNMENT HOUSE, in Our City of Ottawa, this sixth day of April, in the year of Our Lord one thousand nine hundred and thirty-seven and in the First Year of Our Reign.

By Command,

E. H. COLEMAN,  
*Under Secretary of State.*







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Publication





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CANADA

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Publications

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( DEPARTMENT OF FINANCE )

# REPORT

OF THE

## MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year  
1938

Published by Authority of the  
MINISTER OF FINANCE



OTTAWA  
J. O. PATENAUDE, I.S.O.  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1939











PLATE I



ONE HUNDRED MILLION DOLLARS IN FINE GOLD BARS

Eight months' production of 1938 by the gold mines of Canada. Refined at the Royal Canadian Mint.



CANADA

DEPARTMENT OF FINANCE

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# ROYAL CANADIAN MINT.

OTTAWA, August 17, 1939.

The Honourable  
The Minister of Finance,  
Ottawa, Ontario.

SIR:

I have the honour to submit the following report on the operations of the Royal Canadian Mint during the calendar year 1938.

The issues of coin as detailed below exceeded those of the previous year by \$35,100.00, the number of silver dollars showing a further decrease.

Denomination	Coin Issued in	
	1937	1938
	\$	\$
SILVER COIN—		
1 dollar.....	240,900	90,000
50 cents.....	96,000	96,000
25 cents.....	711,900	782,000
10 cents.....	273,400	408,000
	1,322,200	1,376,000
NICKEL COIN—		
5 cents.....	251,100	153,500
BRONZE COIN:		
1 cent.....	105,400	184,300
Total.....	1,678,700	1,713,800
	Number of Pieces	
	21,576,500	28,990,000

## Worn and mutilated coin withdrawn from circulation:

	Withdrawn	Net Increase
	\$	\$
Silver Coin.....	280,933.25	1,095,066.75
Nickel Coin.....	1,267.15	152,232.85
Bronze Coin.....	95,712.54	88,587.46

## GOLD BULLION.

Six thousand six hundred and fifty-four deposits of gold bullion weighing 5,411,833 ounces were received from mining companies and sundry persons, and 259 deposits weighing 189,424 ounces were received from the Dominion of Canada Assay Office, Vancouver, B.C. The total gross weight, including mutilated gold coin was 5,601,261 ounces, or 192 short tons, which contained by assay 4,398,258 fine ounces gold and 671,732 ounces fine silver. The average price paid for gold was \$35.1725 per ounce fine, and for silver 42.1018 cents per ounce fine, the net value paid the depositors by cheque after deducting Mint and handling charges and postage collected on account of the Postmaster General being \$147,609,048.13 (including premium on gold). In addition there were

issued to depositors 3,863.737 ounces of fine gold with a statutory value of \$79,871.09.

Details of deposits distributed as to origin are shown in the following table:—

Receipts at Ottawa and at Vancouver distributed as follows:

No. of deposits in Ottawa, 6,654. In Vancouver, 2,296.

Source	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
From Canadian Mines.....	5,572,254.060	4,388,771.238	667,344.11
Jewellery and Scrap.....	43,289.000	18,894.640	5,559.05
Foreign Coin.....	12.375	11.108	.....
Mutilated Coin.....	3.797	3.425	.....
	5,615,559.232	4,407,680.411	672,903.16
Ontario Mines.....	3,570,998.050	2,840,980.663	398,898.01
Quebec Mines.....	1,167,370.900	944,161.079	124,512.04
British Columbia Mines.....	532,364.060	404,039.235	78,851.58
Manitoba Mines.....	178,506.950	100,315.198	47,503.37
Yukon Mines.....	87,672.910	68,234.110	15,794.66
Nova Scotia Mines.....	29,040.700	26,199.301	974.10
North West Territories.....	5,783.225	4,455.323	776.10
Alberta and Saskatchewan.....	517.265	386.329	34.25
	5,572,254.060	4,388,771.238	667,344.11

There were issued to the Bank of Canada 10,742 gold trade bars containing 4,289,022 fine ounces of gold. Granulated gold, including medals and proof plate, amounting to 11,823 ounces fine, was issued to manufacturers and others. Sweep and residues sold accounted for 7,222 fine ounces.

One of the features of the work of this Mint during the past year was the production of 5,060,000 coins on behalf of the Dominican Republic. Negotiations between His Majesty The King in the right of the Dominion of Canada and a Canadian Chartered Bank (The Royal Bank of Canada) acting for and on behalf of the Dominican Republic, began in October, 1936, with respect to the minting of coins at this Mint for the said foreign state. The terms and conditions of an agreement were approved between the Bank and the Minister of Finance, under regulations duly prescribed by proclamation pursuant to the provisions of Sec. 18 (1) (c) of the Department of Finance and Treasury Board Act, R.S.C. 1927, Cap. 71, and by approval of His Excellency the Governor General in Council. Sketches of the designs for the new coinage, which had been supplied by the Dominican Government, accompanied by a short description in Spanish of each coin, were forwarded to the Deputy Master and Comptroller of the Royal Mint, London, whose kind co-operation had been enlisted for the preparation of the necessary master dies and to arrange for the artists to execute suitable models. Mr. T. H. Paget, who had the honour of modelling the obverse design bearing the uncrowned effigy of His Majesty, King George VI, for the new coinage of the Dominion struck in 1937, was entrusted with the preparation of the models for the obverse of the principal denominations, from which the matrices and punches were made at the Royal Mint, London.

There were five denominations, viz., three of silver 900 fine, the medio-peso, 12½ gramos weight (of the same size, weight, thickness, fineness and tolerance



as the American half-dollar silver coins); the 25 centavos,  $6\frac{1}{4}$  gramos; the 10 centavos,  $2\frac{1}{2}$  gramos; one denomination of cupro-nickel, 5 centavos, 5 gramos, and a bronze one centavo. On the reverse all denominations bore the Coat of Arms of the Dominican Republic (Escudo de la Republica Dominicana). For the obverse design the 50 cents, 25 cents, 10 cents and 5 cents had the effigy of Liberty (La efígie de la Libertad). In the case of the one cent a Palm tree was represented. All denominations were of the same size, weight, thickness, fineness and tolerance as the corresponding denomination of the United States of America.

The actual minting of the Dominican coinage took place during the first three months of this year so as not to interfere with or impede the execution of necessary coinage for the Dominion of Canada. The entire issue was completed and shipped to Ciudad Trujillo by March 31, 1938.

Photographs of the various denominations are shown in Plate II.

### OPERATIVE DEPARTMENT.

The Melting, Rolling and Cutting, Annealing, Coining and Examining sections of the Mint were fully occupied during 1938. The total coins passed for issue amounted to 34,953,472 pieces. This figure is a record one and is very considerably in excess of any other year in Ottawa Mint history, except 1920, when 41,182,574 pieces were struck.

In order to attain this result and satisfy the unprecedented demands for coin by the Bank of Canada, overtime to 9.00 p.m. for seven weeks from November 2nd to December 20th was necessary, together with an increase in the number of workmen in order to keep all machines in continuous operation. For some years the Operative Department staff had not been up to full strength which required the shifting of craftsmen from one branch to another as the bullion and coins progressed through their various processes. This meant a limited output owing to idle machinery, the average number of pieces during a regular week's run not exceeding 500,000 pieces. With all machines manned and the four hours daily extra work, an average of nearly 1,500,000 pieces weekly during the seven weeks of overtime was attained.

The following comparative table shows the number of good coins produced and passed for issue in 1937 and 1938:—

		1937	1938
		Pieces	Pieces
<b>SILVER—</b>			
Dominion of Canada	\$1.00.....	241,002	90,304
Dominion of Canada	50 cents.....	192,016	192,018
Foreign	50 centavos.....		500,000
Dominion of Canada	25 cents.....	2,843,498	3,149,245
Foreign	25 centavos.....		560,000
Dominion of Canada	10 cents.....	2,691,332	4,197,323
Foreign	10 centavos.....		1,000,000
<b>NICKEL—</b>			
Dominion of Canada	5 cents.....	4,593,263	3,898,974
Cupro-Nickel Foreign	5 centavos.....		2,000,000
<b>BRONZE—</b>			
Dominion of Canada	1 cent.....	10,719,054	18,365,608
Foreign	1 centavo.....		1,000,000
		21,280,165	34,953,472

(These figures do not include 200 sets specimen coins, dated 1937, struck in 1938).

Details with regard to the production of bars, blanks and coins are summarized in the following table:—

—	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
<i>For Canada</i>	Ozs.	Ozs.	Ozs.	Pieces
SILVER (800 fine)—				
1 dollar.....	202,123	174,321	90,761	90,304
50 cents.....	128,447	128,447	78,995	192,018
25 cents.....	882,765	870,469	595,460	3,149,245
10 cents.....	571,900	528,360	338,637	4,197,323
Total Silver (800 fine).....	1,785,235	1,701,597	1,103,853	7,628,890
NICKEL—				
5 cents.....				3,898,974
BRONZE—	Lbs.	Lbs.	Lbs.	
1 cent.....	201,948	198,561	135,945	18,365,608
				29,893,472
<i>For Dominican Republic</i>	Ozs.	Ozs.	Ozs.	
SILVER (900 fine)—				
50 centavos.....	426,641	310,837	209,356	500,000
25 centavos.....	186,926	188,874	127,079	560,000
10 centavos.....	178,449	130,316	82,149	1,000,000
Total Silver (900 fine).....	792,016	630,027	418,584	2,060,000
CUPRO-NICKEL—				
5 centavos.....				2,000,000
BRONZE—	Lbs.	Lbs.	Lbs.	
1 centavo.....	11,188	11,271	7,803	1,000,000
	Short Tons 194.94	Short Tons 184.86	Short Tons 124.07	5,060,000
Total number of Pieces (Canadian and Dominican).....				34,953,472

### Melting House—

In addition to the bars cast for coinage the following melting operations were performed:—

379,490.00 ounces of silver worn coin were cast into 1,000-ounce ingots.

### Rolling Room—

Incidental work performed in the Rolling Room:—

- (1) 83 ounces gold proof plate rolled.
- (2) 1,596 ounces of fine silver rolled for the Assay Office.
- (3) 65,751 lead discs were made from lead bars rolled for the Assay Office.











### Coining Press Room—

The total dies used in the Press Room, exclusive of the Dominican coinage dies, were 848 (376 plus 472) divided as below for each denomination:—

	Obverse	Reverse
Dollars.....	3	1
50 cents.....	4	5
25 cents.....	84	222
10 cents.....	146	142
5 cents.....	47	34
1 cent.....	92	68

### Examining Room—

Five consignments of nickel blanks in lots of one million pieces each were purchased from the Falconbridge Nickel Mines, Ltd., the blanks being shipped from Oslo, Norway. They were tested and found satisfactory according to Mint specifications as to nickel content, weight, diameter and thickness.

### Die and Medal Branch—

The total number of matrices, punches and dies manufactured during 1938 for Canadian coinage purposes was 1,134, for Dominican coinage 111.

#### CANADA—DIES MANUFACTURED

	Obverse	Reverse
Dollars.....	48	6
50 cents.....	0	18
25 cents.....	114	239
10 cents.....	132	156
5 cents.....	54	48
1 cent.....	108	96

#### DOMINICAN REPUBLIC—DIES MANUFACTURED

50 centavos.....	15	15
25 centavos.....	18	18
10 centavos.....	24	24
5 centavos.....	26	29
1 centavo.....	19	16

Two steel segmental signature die blocks bearing a facsimile in reverse of the signature of each of the following officers in the Department of National Revenue, Messrs. A. B. Johnson, D. G. Whittle and R. P. Brown, were engraved and fitted to a cheque-signing machine.

Eighty steel signature dies were made with the signature, D. Gordon, for use on the Bank of Canada notes.

Thirty R.C.M.P. Long Service Medals, mounted with clasp and ribbon, and engraved with the recipients' names, were issued to the Commissioner of the R.C.M.P. Two gold medals were struck for the Royal Society of Canada, the Flavelle Medal engraved for presentation to Mr. W. Lash Miller, 1938, and the Tyrrell Medal engraved with the name of William Wood, 1938. Plate III.

Incidental work by the engraver consisted of one round steel die to stamp "ROYAL CANADIAN MINT" on fine silver ingots and one steel die "CANADA" was made for the Bank of Canada.

One Webster Memorial Medal was struck here on behalf of Mrs. J. Clarence Webster of Shediac, N.B. In 1934 this medal, known as the John Webster Medal for Good Airmanship, was modelled by Mr. Percy Metcalf at the request of Mrs. Webster who had instituted a trophy open to amateur pilots in Canada

for Good Airmanship in memory of her son who lost his life in a flying accident some years ago. The trophy itself was designed by the late Dr. Tait Mackenzie.

Previously the medal was struck at the London Mint, but this year Mrs. Webster desired that it be struck here. The dies were received from London and a bronze medal bearing the inscription on the reverse THE JOHN WEBSTER MEDAL FOR GOOD AIRMANSHP, and showing on the obverse a flying figure in human form with two birds in flight, was struck and awarded to Gordon R. McGregor. See Plate III.

### **Mechanics' Shop—**

The three boilers were overhauled and cleaned of loose scale and sediment which had flaked off the tubes of the boilers as the result of the continued efficient working of the Scale Buoy. No. 3 Boiler, installed in 1935, was as clean and free from scale as on the day of installation. After fitting five new tubes to the No. 1 Boiler, all boilers were inspected and passed by the Public Works Department Inspector.

Two steel rolls were ground for the Canadian Bank Note Company.

Two sets of brasses of special alloy were trued up and fitted to No. 2 Rolling Mill.

A motor driven arc welding machine with a capacity of 150 amperes was designed in the electrical branch and assembled from spare parts in the machine shop, and has proven useful in welding many breaks which would have otherwise required new parts.

Three new copper drums were made for blanching silver blanks.

Three automatic weighing machines were re-designed to weigh dollars.

### **Miscellaneous—**

The Canadian Motion Picture Bureau completed a series of moving pictures showing the various processes of coining.

Specially designed receptacles were fabricated in the Mechanics' Shop to catch the heavy rolling mill oil below the journals of the rolling mills. Previously the oil had dripped into waste and make-shift cans and was wiped up, which meant a heavy loss of good oil as the oil had lost none of its lubricating qualities. With the installation of the oil filter, proper drip pans and—specially designed draining troughs, the amount of oil used has been reduced from 265 gallons to 65 gallons for the year, a saving of over 75 per cent in the quantity of oil used.

## **REFINERY**

Ten thousand nine hundred and sixty-seven (10,967) fine gold ingots (trade bars) with a gross weight of 4,420,379 ounces and containing 4,406,553 ounces of fine gold with a mean assay of 996.87; granulated gold with a gross weight of 12,395 ounces containing 12,393 ounces of fine gold at a mean assay of 999.84 and fine silver with a gross weight of 563,576 ounces containing 563,012 ounces of fine silver at a mean assay of 999.0 were delivered to the Mint Office.

Of the total amount of deposits received, 213,758 ounces were remelted and 16,450 ounces subjected to special treatment (toughened) before uniform assays could be obtained.

Sweeps amounting to 73.84 tons (short) were obtained from all Refinery operations, and concentrates amounting to 2,228 ounces of fine gold and 2,177 ounces of fine silver were recovered.

Sweeps containing 7,222 ounces of fine gold and 81,317 ounces of fine silver were sold during the year.

## ASSAY OFFICE

The Chief Chemist and Assayer reports as follows:—

The number of assays made from the 1st January to the 31st December, 1938, was as follows:—

### GOLD—

Refinages.....	5,744	
Rough Gold.....	33,532	
Proofs.....	3,230	
Parting proofs.....	834	
Parting buttons.....	12,985	
Miscellaneous.....	347	
		56,672

### SILVER—

Canadian Coinage, Standard Bars.....	2,649	
Pyx.....	602	
Proofs.....	935	
Republica Dominicana Coinage, Standard Bars.....	1,397	
Pyx.....	114	
Fine silver bars.....	851	
Miscellaneous.....	799	
		7,347

### MISCELLANEOUS—

Mint sweeps, residues, etc.....	224	
Commercial.....	316	
Precious Metals Marking Act.....	95	635
Total Number of Assays.....		64,654

Representative samples taken from 50,071 pounds nickel five-cent blanks supplied to the Mint were examined for composition and hardness, and the blanks were found to comply in all respects with the specifications.

The mean finenesses of Canadian Silver Coinage struck during 1938 were as follows:—

Denomination	Standard Fineness	Mean Fineness
1 dollar.....	800.0	800.04
50 cents.....	800.0	799.91
25 cents.....	800.0	799.85
10 cents.....	800.0	799.85

Coinage for the Republica Dominicana was undertaken by the Mint during this year, and the mean finenesses of the silver coinage struck were as follows:—

Denomination	Number of Pieces Struck	Standard Fineness	Mean Fineness
50 centavos.....	500,000	900.0	898.66
25 centavos.....	560,000	900.0	899.35
10 centavos.....	1,000,000	900.0	899.38



Two fine gold and two fine silver working trial plates were made and fixed. Three and one-half ounces of fine gold trial plate and thirty-eight ounces of fine silver trial plate were sold during the year.

A quantity of gold-plated rings and pen nibs, which on examination were found not to comply with the Marking Act, were destroyed for the Department of Trade and Commerce.

Several coins, suspected of being counterfeit, were examined for the Bank of Canada.

In blanching silver blanks, after annealing, a very small amount of silver is dissolved with the copper oxide by the dilute acid, which goes to waste. An investigation is in progress to find out if it would be economical to recover this silver.

The acid solution is being collected after each day's work and the small amount of silver is precipitated as silver chloride which will be allowed to accumulate over a period of six months, when it will be reduced to silver and the recovery obtained.

### DOMINION OF CANADA ASSAY OFFICE

There was a considerable increase in the amount of bullion passing through this office as compared with the previous year, as shown below:—

—	No. of Deposits	Gross Weight Ounces	Fine Gold Ounces	Fine Silver Ounces
1938.....	2,296	203,722·760	167,085·267	24,554·22
1937.....	1,926	118,746·920	91,236·269	18,241·59
Increase.....	370	84,975·840	75,848·998	6,312·63
Distribution for 1938—				
British Columbia.....		106,277·110	94,092·110	7,180·91
Yukon Territory.....		87,672·910	68,234·110	15,794·66
Alberta and Saskatchewan.....		475·290	354·270	30·95
Scrap Gold.....		9,297·450	4,404·777	1,547·70
Totals.....		203,722·760	167,085·267	24,554·22

The total amount disbursed in payment for these deposits was \$5,822,688.44 as against \$3,157,229.61 in 1937, an increase of \$2,665,458.83.

### GENERAL

Officers of the Auditor General's Department conducted, in March, the stocktaking required by the Act establishing the Royal Canadian Mint.

Mr. R. H. Field and Dr. D. F. Stedman of the National Research Council, and Mr. C. S. Parsons of the Department of Mines, who were appointed Assay Commissioners, under the Currency Act, for the purpose of ascertaining that the coins struck during the year 1938 were coined in accordance with the provisions of the Act, met at the Mint in the first week of May, and found by their verdict that all the silver coins, there being no gold coins, in the Pyx were within the prescribed remedies of weight and fineness.



Seven thousand five hundred and thirty-four visitors, including parties of students, were shown over the works.

Appendix A shows the transactions in gold bullion since the opening on the 2nd January, 1908, of the Mint in Ottawa, and in Appendix B details are given of the issues of coin in Canada.

Mr. J. H. Campbell, O.B.E., I.S.O., retired from active duty as Master of this Mint on the 31st March, 1938, after a combined Mint service of over fifty-four years.

Appointed originally as a Clerk in the Sydney (Australia) Branch of the Royal Mint in 1884, Mr. Campbell steadily progressed through all the various departments to the post of Deputy Master. In 1926, at the closing of the Sydney Mint, Mr. Campbell accepted the post of Deputy Master at the Ottawa Branch Mint. Possessing a wide knowledge of minting methods and practice, exceptional administrative ability and remarkable capacity, Mr. Campbell, throughout his twelve years of service at the Ottawa Mint, commanded the confidence and respect of all those with whom he came in contact.

Mr. Campbell was appointed a Companion of the Imperial Service Order in 1929, and received the Insignia of an Officer of the Most Excellent Order of the British Empire in 1935 in appreciation of his long and distinguished service.

On the eve of his retirement a sterling silver tray was presented to Mr. Campbell by the Honourable Charles A. Dunning on behalf of his colleagues in the Department of Finance.

I am, Sir,

Your obedient Servant,

H. E. EWART,  
*Master, Royal Canadian Mint.*

## APPENDIX A.

SUMMARY OF TRANSACTIONS IN GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1908, to its disestablishment on the 30th November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1938.

Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	Value Coin and Bullion
	Ozs.	\$	\$	Ozs. Fine	\$
1908 to 30th Nov., 1931...	34,321,068.750	591,419,217.02	7,923,878.73	28,141,076.806	589,651,570.24
1931—1st to 31st Dec.....	299,973.100	5,100,968.08	.....	189,512.838	3,917,577.86
1932.....	3,520,276.570	58,491,549.39	.....	2,873,221.290	59,394,754.05
1933.....	3,331,905.174	53,819,014.01	.....	2,589,648.765	53,532,789.33
1934.....	3,888,848.540	62,201,080.02	.....	3,038,018.961	62,801,423.68
1935.....	3,996,131.927	65,297,776.55	.....	3,177,497.360	65,684,697.95
1936.....	4,552,289.960	74,487,536.98	.....	3,625,548.842	74,946,744.64
1937.....	4,959,970.893	81,311,693.73	.....	3,937,910.698	81,403,837.11
1938.....	5,601,260.642	90,920,063.13	.....	4,308,067.369	89,055,654.13
	64,471,725.556	1083,048,898.91	7,923,878.73	51,880,502.929	1080,389,048.99

# APPENDIX B. COIN ISSUED IN CANADA

		SILVER							NICKEL	BRONZE	
		Dollar \$	50c. \$	25c. \$	20c. \$	10c. \$	5c. \$	Total Silver \$	5c. \$	1c. \$	$\frac{1}{2}$ c. \$
1858 to 1907	New Brunswick, 1861, 2 and 4.....				60,000	25,000	10,000	95,000		20,000	1,114
	Nova Scotia, 1861, 2 and 4.....									26,000	4,000
	Prince Edward Island, 1871.....									10,000	
	Rest of Canada, 1858-1907.....		1,249,018	5,094,978	150,000	3,040,000	2,926,000	12,459,996		803,315	
	Totals.....		1,249,018	5,094,978	210,000	3,065,000	2,936,000	12,554,996		859,315	5,114
		GOLD									
	Sovereigns £	\$10 \$	\$5 \$								
1908 to 1938	627,834	3,480,360	1,388,060								
1927				2,539,000		4,980,844	3,084,802	18,291,571	814,000	1,224,206	
1928				6,000		326,000		867,000	250,000	92,100	
1929				84,000		325,000		1,081,000	267,000	123,300	
1930				18,000		144,000		326,000	164,500	13,400	
1931				34,000		229,400		475,400	281,000	51,400	
1932				18,400		134,000		287,000	165,000	213,200	
1933						58,000		155,000	125,000	120,800	
1934						48,000		172,300	193,000	69,900	
1935				19,200		38,500		601,020	194,000	75,100	
1936				19,300		241,800		809,200	202,600	87,200	
1937				96,000		273,400		1,322,200	251,100	105,400	
1938				96,000		408,000		1,376,000	153,500	184,300	
	627,834	3,480,360	1,388,060	4,178,918	16,571,303	210,000	10,272,544	6,020,802	38,318,687	3,219,621	5,114



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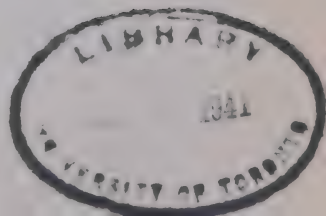
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DEPARTMENT OF FINANCE

ROYAL CANADIAN MINT

Report  
For the Calendar Years  
1939-1940

OTTAWA  
EDMOND CLOUTIER  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1941













CANADA

DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Years  
1939 - 1940

Published by Authority of the HON. J. L. ILSLEY, K.C., M.P.,  
MINISTER OF FINANCE

OTTAWA  
EDMOND CLOUTIER  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1941



# ROYAL CANADIAN MINT

OTTAWA, February 28, 1941.

The Honourable  
The Minister of Finance,  
Ottawa, Ontario.

SIR:

I have the honour to submit, for your consideration, the report on the operations of the Royal Canadian Mint for the calendar years 1939 and 1940. On the ground of economy, the issue of the 1939 report was withheld until the work performed in 1940 could be included under the same cover.

## COINAGE

The issues of coin in 1939, as detailed below, show a continued and greater increase in both values and number of pieces over previous years, and exceeded 1938 by 9,487,332 pieces valued at almost double 1938, viz., a gain of \$1,615,832.

Denomination	Coin Issued in	
	1938	1939
	\$	\$
SILVER COIN—		
1 dollar.....	90,000	1,220,732
50 cents.....	96,000	144,000
25 cents.....	782,000	867,400
10 cents.....	408,000	561,900
	1,376,000	2,794,032
NICKEL COIN—		
5 cents.....	153,500	321,000
BRONZE COIN—		
1 cent.....	184,300	214,600
Total.....	1,713,800	3,329,632
Representing	Number of Pieces	
	28,990,000	38,477,332

Worn and mutilated coin withdrawn from circulation:—

	Withdrawn	Net Increase in Circulation
	\$	\$
Silver Coin.....	256,072.10	2,537,959.90
Nickel Coin.....	1,434.25	319,565.75
Bronze Coin.....	41,559.54	173,040.46

## GOLD BULLION

Seven thousand two hundred and ninety-one deposits of gold bullion weighing 5,958,310 ounces were received from mining companies and sundry persons, and 294 deposits weighing 223,025 ounces were received from the Dominion of Canada Assay Office, Vancouver, B.C. The total gross weight, including mutilated gold coin was 6,181,336 ounces or 212 short tons, which contained by assay 4,869,239 ounces fine gold and 742,726 ounces fine silver. This is an increase in receipts over the previous year of 672 deposits weighing 580,075 ounces, containing 470,981 ounces of fine gold and 70,994 ounces of fine silver.

The average price paid for gold was \$36·1365 per ounce fine, and for silver 41·0201 cents per ounce fine.

The net value paid to depositors by cheque, after deducting Mint charges for refining, handling charges, and postage collected on account of the Postmaster-General, amounted to \$167,654,189.31 (including premium on gold). In addition there were issued to depositors 4,003·992 ounces of fine gold with a statutory value of \$82,770.47.

Postage charges collected for the Postmaster-General amounted to \$48,893.00

Details of deposits as to origin are shown in the following table:—

Receipts of gold at Ottawa and Vancouver are distributed as follows:—

No. of deposits at Ottawa, 7,291; at Vancouver, 2,326

Source	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
From Canadian Mines.....	6,130,852·875	4,845,784·145	736,835·50
Jewellery and Scrap.....	35,985·375	15,689·936	4,233·28
Foreign Gold Coin.....	535·800	481·973	.....
Foreign Mines.....	12,073·000	3,386·109	1,020·66
Mutilated Gold Coin.....	0·940	0·860	.....
	6,179,447·990	4,865,343·023	742,089·44
List of Mines—			
Ontario.....	3,844,348·825	3,071,130·154	426,622·50
Quebec.....	1,299,058·325	1,060,663·563	130,365·09
British Columbia.....	591,671·785	439,621·991	98,531·97
Manitoba.....	183,598·200	108,443·323	48,061·85
Yukon.....	108,139·880	84,182·188	19,523·94
Nova Scotia.....	30,916·900	28,071·397	961·06
North West Territories.....	63,835·450	46,987·618	11,033·26
Alberta and Saskatchewan.....	562·610	419·872	36·49
Saskatchewan.....	8,720·900	6,264·039	1,699·34
	6,130,852·875	4,845,784·145	736,835·50

Twelve thousand and forty-six fine gold bars, averaging 400 ounces troy each in weight, were issued to the Bank of Canada. All bars assayed over 995·0 and contained 4,808,517 ounces fine. Fine gold was issued and sold in the form of granulated gold to depositors, manufacturers and others, as proof-plate and medals, and through the sale of sweep recovered, residues and chlorides, the whole amounting to 25,697 ounces. The total fine gold issued was 4,834,214 ounces, an increase over the previous year of 526,147 ounces fine.

## COMMEMORATIVE COINS AND MEDALS

In commemoration of the visit of Their Majesties, King George VI and Queen Elizabeth, to our Dominion of Canada in May and June, 1939, the Royal Canadian Mint was called upon to strike medals and silver dollars. In this connection, the first meeting of the Commemorative Sub-committee was held in the office of the Chairman, Dr. W. C. Clark, Deputy Minister of Finance, on Saturday, the 19th November, 1938, for the purpose of selecting the most suitable designs.

The reverse medal design was prepared from suggestions of the Commemorative Sub-committee which had been informed of Prime Minister Mackenzie King's desire to create a medal which would portray the extensive itinerary of the Royal Visitors across Canada. Mr. Emanuel Hahn, R.C.A., S.S.C., a distinguished Canadian artist and sculptor, carried out the wishes of the Commemorative Sub-committee in designing and modelling the reverse official commemorative medal and the reverse of the silver dollar.

The following are the descriptions of the medal and the silver dollar:—

The obverse of the medal is a portrait view of Their Majesties as at the time of Their Coronation. On each medal appear the conjoint effigies of King George and Queen Elizabeth, crowned and robed. Mr. Percy Metcalfe, noted British artist, to whom Their Majesties accorded special sittings, designed the obverse of the Coronation Medal, a replica of which was graciously approved by Their Majesties to appear on the Commemorative Medals for the Royal Visit to Canada. (*Plate "B"*)

On the reverse is engraved an outline map of the Dominion of Canada, with its lakes and rivers. In slightly raised relief is traced the itinerary of King George and Queen Elizabeth as they toured Canada from the Atlantic to the Pacific, and return, over the two transcontinental railroads. The shield of the Arms of Canada, displayed at the top, represents the four great races of men, English, Scottish, Irish and French, who were the founders of Canada, now united in the symbol of the three-leaved sprig of maple. Surmounting all is ensigned the Imperial Crown. Encircling Canada, the Shield and Crown, is the legend or inscription "A MARI USQUE AD MARE REGEM ET REGINAM CANADA SALUTAT" (From sea to sea Canada salutes her King and Queen). (*Plate "B"*)

On the obverse of the silver dollar appears the likeness of King George VI, as approved by His Majesty in 1937 to be the official design on the coins of the Mother Country and Dominions in the British Empire.

The reverse design shows the Centre Block and Peace Tower of the Parliament Buildings at Ottawa with the inscription at the top "FIDE SUORUM REGNAT" (The King reigns on the loyalty of His People). (*Plate "A"*)

The obverse of the dollar was designed by Mr. T. Henry Paget of London, England, whose artistic service has figured largely in connection with the coinage and medals of the British Empire. The reverse of the dollar was modelled by Mr. Emanuel Hahn, who also did the reverse of the Commemorative Medal.

A case of Commemorative Coins and Medals, containing two fine gold medals and two silver dollars, was presented to King George VI and Queen Elizabeth at the Parliamentary Dinner on Saturday evening, the 20th May, 1939, by the Hon. Charles Dunning, Minister of Finance, on behalf of the Government of Canada.

The case was made of sterling silver, mounted on a base of Canadian bird's-eye maple, and was supported at each corner by a Sterling Silver Beaver,



which is one of the symbols of Canada. On the top of the case, in the centre of the silver cover, was affixed the Canadian Coat-of-Arms in coloured enamels. Inside, and serving as a protecting cover for the coins and medals, was a hinged glass top, held in place by a silver bezel, with the inscription on the upper bezel "TO THEIR MAJESTIES THE KING AND QUEEN"; on the lower, "FROM THE GOVERNMENT OF CANADA"; on the left, "MAY-JUNE"; and on the right, "1939". The sterling silver case was enclosed in a Presentation Case of Royal Blue Morocco Leather, lined with Royal Purple Silk Velvet.

The complete set was designed and made by Messrs. Mappin's, Limited, of Montreal, from Canadian materials and by Canadian craftsmen.

The two gold medals were struck in pure gold refined at the Royal Canadian Mint from gold deposits of the mines of Canada.

For presentation to H.R.H. The Princess Elizabeth two commemorative medals and two silver dollars were struck at the Royal Canadian Mint and displayed in a sterling silver case.

Engraved on the bezel surrounding the four sides of the hinged glass cover was the inscription "H.R.H. THE PRINCESS ELIZABETH FROM THE GOVERNMENT OF CANADA, MAY-JUNE, 1939".

For presentation to H.R.H. The Princess Margaret Rose two commemorative medals and two silver dollars were struck and displayed in a sterling silver case.

Engraved on the bezel surrounding the four sides of the hinged glass cover was the inscription "H.R.H. THE PRINCESS MARGARET ROSE FROM THE GOVERNMENT OF CANADA, MAY-JUNE, 1939".

The medals were similar in design to those presented to Their Majesties, but were made one of fine silver and the other of bronze.

At the meeting of the Commemorative Sub-committee, held in Dr. Clark's office on the 7th January, 1939, it was agreed that the Royal Canadian Mint strike silver and bronze medals to be sold to the public as souvenirs of the Royal Visit by the twelve thousand Post Offices throughout Canada.

In connection with the number of School Children's Medals to be struck, it was decided that the figures given by the provincial authorities should be accepted as official. The details regarding the number of medals and dollars struck are given in the Operative Department's report.

## OPERATIVE DEPARTMENT

In anticipation of the visit of Their Majesties, King George VI and Queen Elizabeth, to Canada in May, 1939, preparations began early in the year on special work in commemoration of this rare and interesting occasion.

At the request of the Commemorative Sub-committee five fine gold medals, 125 fine silver medals and 650 tombac medals, all 2.125 inches in diameter, were struck for special presentation. Bronze medals for all the school children of Canada were struck to the number of 2,533,943, one inch in diameter. One hundred and eighty-three thousand fine silver medals, 1.272" diameter, and 417,000 bronze medals, 1.215" diameter, were struck to be sold to the public through the Post Offices of Canada. The design for all the medals mentioned in the foregoing was the same, as described under the heading "Commemorative Coins and Medals".

It was also decided to issue a commemorative dollar. One million, three hundred and sixty three thousand, eight hundred and sixteen dollars were struck

and 1,220,732 dollars were issued through the Bank of Canada and the Post Offices.

Another record was made in the number of pieces produced, the total of coins passed for issue amounting to 37,947,477 of all denominations, which is 2,994,005 more than the previous year.

A comparative table of good coins produced and passed for issue in 1938 and 1939 is given below:—

	1938	1939
	Pieces	Pieces
SILVER—800 fine—		
Dominion of Canada 1 dollar.....	90,304	1,363,816
Dominion of Canada 50 cents.....	192,018	287,976
Dominion of Canada 25 cents.....	3,149,245	3,532,495
Dominion of Canada 10 cents.....	4,197,323	5,501,748
NICKEL—pure—		
Dominion of Canada 5 cents.....	3,898,974	5,661,123
BRONZE—		
Dominion of Canada 1 cent.....	18,365,608	21,600,319
	29,893,472	37,947,477
FOREIGN COINS.....	5,060,000	.....
	34,953,472	37,947,477

Details of the production of coinage bars and blanks are summarized below:—

	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Pieces
SILVER (800 fine)—				
1 dollar.....	2,408,276	2,031,441	1,138,638	1,363,816
50 cents.....	210,098	200,933	126,595	287,976
25 cents.....	1,112,220	1,056,174	698,810	3,532,495
10 cents.....	726,030	632,725	416,851	5,501,748
Total Silver.....	4,456,624	3,921,273	2,380,894	10,686,035
NICKEL—				
5 cents.....				5,661,123
BRONZE—				
1 cent.....	Lbs. 242,996	Lbs. 239,460	Lbs. 163,567	21,600,319
Totals.....	Short Tons 274.30	Short Tons 254.17	Short Tons 163.41	37,947,477

In addition to the bars, blanks and coins produced for coinage, the following operations were performed in connection with medals commemorating the Royal Visit:—

	Bars Cast	Bars Rolled	Blanks Cut	Medals Produced
	Ozs.	Ozs.	Ozs.	Pieces
FINE GOLD— 2·125" medals.....	200	200	108	8
FINE SILVER— 2·125" medals.....	1,005	1,005	298	125
1·272" medals.....	346,595	331,714	172,323	183,000
BRONZE— 1·215" medals and School Children's medals.....	Lbs. .... 135,782	Lbs. .... 133,417	Lbs. .... 87,583	{ 417,000 2,533,943
TOMBAC— 2·125" medals.....	300	300	107	649
				3,134,725

### Melting House—

Also, during the year, the withdrawn worn silver coin amounting to 273,515 ounces was cast into 1,000-ounce ingots for melting into coinage bars after assays had been made.

### Rolling Room—

The additional work in the Rolling Room consisted of:—

- (1) One hundred and thirty-nine ounces of gold proof plate rolled for the Assay Office.
- (2) One thousand, two hundred and thirty-eight ounces of fine silver rolled for discs to be used in the Assay Office.
- (3) Sixty-eight thousand and thirteen lead discs were made from lead bars for the Assay Office.

### Coining Press Room—

The Press Room was engaged to its utmost capacity on domestic coinage and commemorative medals.

The heavy demand for dollars of the new design to commemorate the Royal Visit necessitated the purchase of an additional press. A new type of coining press was procured from Messrs. Taylor & Challen, Ltd., Birmingham, England, to coin 80 to 100 pieces per minute up to two inches in diameter at a maximum pressure exerted at bottom of stroke of 250 tons.

Over and above the record number of pieces struck for coinage purposes, there were 3,134,725 commemorative medals of various sizes. As these medals were of unique design with the superimposed heads of King George VI and Queen Elizabeth on the obverse and the map of Canada with the shield of the armorial bearings imposed upon it on the reverse, extra care and precision had to be taken in their production to ensure pieces as near perfection as possible. All dies were highly polished and the medals were struck slowly to prevent marring of the surfaces or edges.

The increased output of coin is reflected in the number of dies used, amounting to 1,174 dies. The total number for both domestic coinage and medals is given below by denomination:—

Coin			Medals		
—	Obverse	Reverse	—	Obverse	Reverse
1 dollar.....	188	104	Fine silver medals 1·272" ..	7	7
50 cents.....	12	11	Bronze medals 1·215".....	20	24
25 cents.....	58	138	School children's medals....	18	62
10 cents.....	108	110			
5 cents.....	49	36			
1 cent.....	213	147			

The average number of coins struck per pair of dies is 64,646, which is normal considering the quantity of dollars minted.

### Examining Room—

An extra staff of twenty-five female employees was taken on to meet the situation which arose of inspecting and packing each medal in individual envelopes and boxes in time for prompt delivery to the Post Offices and Provincial Departments of Education before the arrival of Their Majesties.

### Die and Medal Branch—

The total number of matrices, punches and dies manufactured during 1939 for Canadian coinage purposes was 1,304.

—	Obverse	Reverse
1 dollar.....	172	148
50 cents.....	27	17
25 cents.....	36	147
10 cents.....	108	123
5 cents.....	72	75
1 cent.....	204	175

At the request of the Comptroller of the Treasury, two steel segmental signature die-blocks bearing a facsimile in reverse of the signature of each of the following officers were prepared by our Engraver: Messrs. G. A. Hoare, N. Sloman, G. W. F. Hodgins, S. H. MacLaren and T. Anderson.

Twenty-one R.C.M.P. Long Service and Good Conduct Medals, mounted with clasp and ribbon, were issued to the Commissioner of the Royal Canadian Mounted Police. Each medal was engraved with the name of the recipient to whom it was to be awarded.

The Great Seal of Canada, King George VI, and the Counter-Seal from the Secretary of State's Department were adjusted in a press.

Two gold medals were issued to the Royal Society of Canada, the Flavelle Medal, engraved for presentation to J. P. McMurrick, 1939, and the Tyrrell Medal for E. Z. Massicotte, 1939.



Upon receipt of the matrices and punches from the Royal Mint, London, for the Commemorative Medals, the following dies were manufactured:—

	Obverse	Reverse
Half Crown Size.....	7	7
Penny Size.....	26	26
School Children's.....	36	66

### Mechanics' Shop and Electrical Branch—

Under the direction of the Foreman of Mechanics the new Coining Press was installed in a separate room from the other presses. To accommodate the weight of this heavy machine the foundation had to be dug four feet into the limestone, the space filled with cement and rock, while two sleepers of 10" x 12" timber 12 feet long, were laid as supports to which the base was bolted.

The 12 h.p. direct current motor, formerly used with the low-voltage generating set in the Assay Office, was rebuilt in the Electrical Branch, to supply the power for the new Coining Press, thus saving the purchase of a new motor.

One of the die annealing and hardening furnaces proved inadequate and a larger one was built and installed.

Repairs to motors and armatures, consisting of rewinding armatures, making of new bearings, shafts, and fixing incidental breakages and short-circuits, were made in the Electrical Branch.

The oil-burning bronze annealing furnace which had been in use since the opening of the Mint in 1908 was dismantled, and a new modern electric annealing furnace, with thermocouple and thermostat control, was installed. Fabricated of boiler-plate, equipped with ribbon elements, thoroughly insulated with diatomite, asbestos board and firebrick, the whole apparatus was completely designed and built in the Mint for coinage requirements. This furnace was found to be adaptable for annealing silver blanks as well as bronze. The only difference in treatment was to allow the air to flow freely through the annealing pots filled with silver blanks by drilling holes in the sides of the cylinders to form the oxide necessary to produce blanché white blanks. The results obtained were so satisfactory as regards colour, softness, lack of blisters in both silver and bronze blanks, and economy of operation, that the oil-burning rotary furnace will also be dismantled and removed in the near future and another electric furnace installed in its place.

The power supply was taken from a 220 v. transformer independent of the generator, so that power would be available from a continuous source when the generator was not running, and by the installation of a time clock, the electric power can be automatically switched on in sufficient time to allow the furnace to be heated ready for the day's work.

Five hundred and eighty Bank of Canada signature dies were destroyed under the power hammer on behalf of the Bank of Canada and in the presence of three Bank representatives.

A Wayne Assay Furnace of the Globar element type was installed for the Chief Chemist and Assayer in the basement of the Assay Department. Electrical connections for its operation were made to the three-phase 550 v. power line.



A fluorescent lighting system, 110 v. with one small booster transformer to operate at 120 volts, was installed in the Assay Department Laboratory.

A steam-coil water heater of the "R" type (Darling Bros.) was installed in the Refinery to act as a booster to preheat the water 140 degrees before it enters the large hot-water storage tank, for use in connection with the silver-chlorides, and other purposes where hot water is required. To conserve the heat the tank and brass pipes were covered with asbestos covering.

A fan enclosed in a sheet metal box was erected outside the compressor room of the new Refinery to draw in cold air for the cooling of the compressor.

Two oil-burning furnaces used for preheating small crucibles in the Chlorination Room of the Refinery were made over into modern electric furnaces, similar to the one installed in the Annealing Room for silver and bronze blanks. The electric elements used are coil instead of ribbon and are recessed between shaped firebrick. Recording pyrometers, and a relay contactor with time-switch, start and stop the electric current at the time required and the temperature necessary to heat the crucibles. With electric heat a much more uniform temperature is obtained and all crucibles are saturated throughout and breakages have greatly decreased when the crucibles come into contact with the molten gold.

### Miscellaneous—

Motion pictures were taken of the Commemorative Medals and Dollars being struck, and especially showing the methods of packing the medals in individual cartons for shipment.

The wooden buildings between the Operative Department and the old Refinery building were torn down by the Public Works Department and a permanent corridor of stone in keeping with Mint architecture was built as a passageway for employees from work to the dressing rooms and dining hall.

The Mint Office Stronghold was enlarged to provide more space for the safe custody of fine gold bars and coins. The great increase in the production of refined gold bars had taxed the accommodation of this vault for some years. By closing up the staircase from the Secretary's office to the basement and removing part of the north wall of the vault, a room 7 feet 3 inches by 13 feet 4 inches, with re-inforced concrete walls, gave the additional space necessary. The work was performed by the Public Works Department.

The cement floor in the Operative Department Stronghold was torn up and replaced by steel plates.

The extra work involved in connection with the production of Commemorative medals and dollars necessitated overtime from the 20th February to the 24th May, the full staff working twelve to fourteen hours daily.

After the outbreak of the war in Europe, the demand for coin increased so greatly that the capacity of the Operative Department was taxed to the utmost and overtime to 11.00 p.m. daily from the 2nd October to the 21st December was again resorted to.

The staff was increased by twelve Apprentice Craftsmen.

The clerical staff was augmented by two clerks from the Audit Office for the spring rush on medals and dollars, and in the autumn two clerks from the Department of Finance were kindly loaned to assist during the overtime. In the twelve weeks of increased hours and work during the latter period, a record number of over 27,000,000 pieces were struck.

## ASSAY OFFICE

The number of assays made during the year ending the 31st December, 1939, was as follows:—

GOLD—		
Refinages.....	6,309	
Rough Gold.....	33,560	
Proofs.....	3,342	
Parting Proofs.....	831	
Parting Buttons.....	13,340	
Miscellaneous.....	1,335	
		58,717
SILVER—		
Coinage Standard Bars.....	5,928	
Pyx.....	1,347	
Proofs.....	1,191	
Fine Silver.....	1,732	
Miscellaneous.....	712	
		10,910
MISCELLANEOUS—		
Mint Sweeps, Residues, etc.....	224	
Precious Metal Marking Act.....	141	
Commercial.....	78	
		443
Total number of assays.....		70,070

Representative samples taken from 20,628 pounds nickel five-cent blanks supplied to the Mint were examined for composition and hardness and the blanks were found to comply in all respects with the specifications.

The mean finenesses of Canadian Silver Coinage struck during 1939 were as follows:—

Denomination	Standard Fineness	Mean Fineness
1 dollar.....	800.0	800.00
50 cents.....	800.0	799.52
25 cents.....	800.0	799.68
10 cents.....	800.0	799.96

A special gold proof plate was made, fineness 999.95, which is only used for fixing the working trial plates.

Two fine gold working trial plates were made and fixed against the special proof plate. One fine gold working parting trial plate and two fine silver working trial plates were also made.

Nine and three-quarter ounces of fine gold trial plate and thirty-two ounces of fine silver trial plate were sold during the year and thirty-four ounces of fine gold trial plate were made and fixed for the Vancouver Assay Office.

A quantity of gold-plated rings and pen nibs which, on examination, did not conform to the Marking Act were destroyed for the Department of Trade and Commerce.

Several coins suspected of being counterfeit were examined for the Bank of Canada.

Five tubular fluorescent daylight lamps with aluminium reflectors have been installed at the back of the small shelves in the laboratory where the final readings are made in the assay of silver bullion by the Gay-Lussac method.

These lamps are lighted from the ordinary A.C. 110 volts lighting current with a small auto-transformer to raise the voltage to 120 volts required to start the lamps.

In determining silver in silver bullion by the above method (which is by far the best) a good light is absolutely necessary and, before the lamps were installed, assays could only be made in daylight, whereas with a constant light equal to daylight, they can now be made during the day or night which is a very great advantage.

A Global electric furnace has been installed in the basement for pot fusions in assaying Mint residues, sweeps, etc. The furnace is the ordinary Global furnace with eight A.T. Global heating elements which have replaced the water-cooled elements.

This furnace does the work of the four coke furnaces, which have been dismantled and removed, in half the time and is much more economical and convenient in every way.

### REFINERY

During the year the Refinery received 7,585 deposits with a gross weight of 6,181,336 ounces containing 4,869,239 ounces of fine gold and 742,726 ounces of fine silver.

Twelve thousand one hundred and fifty fine gold Trade Bars with a gross weight of 4,864,617 ounces containing 4,849,408 ounces of fine gold at an average assay of 996·87, granulated gold with a gross weight of 20,376 ounces containing 20,374 ounces of fine gold at an average assay of 999·86 and silver bars with a gross weight of 542,183 ounces containing 541,658 ounces of fine silver with an average assay of 999·03, were delivered to the Mint Office.

Of the total amount of deposits received, 123,306 ounces were remelted and 12,877 ounces subjected to special treatment (toughened) before uniform assays could be obtained.

Sweep amounting to 75·22 tons was obtained from all Refinery operations, and concentrates amounting to 2,857 ounces of fine gold and 2,692 ounces of fine silver were recovered.

Seven thousand six hundred and ninety-seven ounces of fine gold and 75,415 ounces of fine silver were contained in the sweep sold during the year, and chloride containing 5 ounces of fine gold and 517,914 ounces of fine silver was also sold during this period.

### DOMINION OF CANADA ASSAY OFFICE

There was an increase in the amount of bullion passing through this office as compared with the previous year, as shown below:—

—	Number of Deposits	Gross Weight Ounces	Fine Gold Ounces	Fine Silver Ounces
1939.....	2,326	221,137·000	178,707·286	30,235·32
1938.....	2,296	203,722·760	167,085·267	24,554·22
Increase.....	30	17,414·240	11,622·019	5,681·10
Distribution for 1939—				
British Columbia.....		104,916·760	90,685·960	9,527·55
Yukon Territory.....		108,139·880	84,182·188	19,523·94
Alberta and Saskatchewan.....		536·760	400·416	34·47
Scrap Gold.....		7,543·600	3,438·722	1,149·36
Totals.....		221,137·000	178,707·286	30,235·32



The total amount disbursed in payment of deposits was \$6,442,365.81 as against \$5,822,688.44, an increase of \$619,677.37.

The monthly consignments to Ottawa in 1939 comprised 294 ingots weighing 223,025·300 ounces and contained 182,603·523 ounces of fine gold and 30,871·64 ounces of fine silver.

Eleven special assays of gold jewellery were made for the Inspector under the Precious Metals Marking Act, Department of Trade and Commerce.

The vault of this office was altered and strengthened during the year, and a new door weighing 4¾ tons was installed.

## GENERAL

The inspection of the store of bullion and coin provided for in the Act establishing the Royal Canadian Mint was carried out in March by officers of the Auditor General's Department.

Section 21 of the Currency Act, 1910, provides for an annual test of domestic coinage executed during the prior year by three competent persons to act as Assay Commissioners. In May, Mr. C. S. Parsons of the Department of Mines and Resources, and Drs. D. F. Stedman and D. C. Rose of the National Research Council, met at the Mint, when the silver coins reserved for the Trial of the Pyx were submitted to them. The verdict of the Commissioners disclosed that all pieces examined and tested were found within the legal remedy as to weight and fineness.

It was deemed advisable, after the outbreak of hostilities in Europe, to rescind the privilege always accorded visitors to view the Mint. From January to September, however, some five thousand visitors, including parties of students, were shown the various operations connected with coining.

Major E. V. Murray, Supervisor in the Mint Office, volunteered for active service with the 1st Corps, Petrol Park, and proceeded overseas. Sergeant-Major R. Lanouette, Craftsman in the Operative Department, also proceeded overseas with the same unit, and Apprentice Craftsman C. C. Hancock enlisted for active duty with the Royal Canadian Navy.

Mr. John Burke, Foreman in the Melting House, having reached retiring age, was superannuated after thirty-one years' service in the Mint.

The Museum coin collection was augmented by the addition of specimen pieces struck at the Royal Mint, London. These comprised the new George VI coinage for all parts of the Empire, showing many new and unique designs.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada.

I am, Sir,

Your obedient Servant,

H. E. EWART,  
*Master, Royal Canadian Mint.*

## APPENDIX A

SUMMARY OF TRANSACTIONS IN GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1908, to its disestablishment on the 30th November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1939.

Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	Value Coin and Bullion
	Ozs.	\$	\$	Ozs. Fine	\$
1908 to 30th Nov., 1931...	34,321,068.750	591,419,217.02	7,923,878.73	28,141,076.806	589,651,570.24
1931—1st to 31st Dec.....	299,973.100	5,100,968.08	.....	189,512.838	3,917,577.86
1932.....	3,520,276.570	58,491,549.39	.....	2,873,221.290	59,394,754.05
1933.....	3,331,905.174	53,819,014.01	.....	2,589,648.765	53,532,789.33
1934.....	3,888,848.540	62,201,080.02	.....	3,038,018.961	62,801,423.68
1935.....	3,996,131.927	65,297,776.55	.....	3,177,497.360	65,684,697.95
1936.....	4,552,289.960	74,487,536.98	.....	3,625,548.842	74,946,744.64
1937.....	4,959,970.893	81,311,693.73	.....	3,937,910.698	81,403,837.11
1938.....	5,601,260.642	90,920,063.13	.....	4,308,067.369	89,055,654.13
1939.....	6,181,336.290	100,656,105.55	.....	4,834,214.285	99,932,075.82
	70,653,061.846	1,183,705,004.46	7,923,878.73	56,714,717.214	1,180,321,124.81



# APPENDIX B COIN ISSUED IN CANADA

	SILVER							NICKEL	BRONZE	
	Dollar \$	50c. \$	25c. \$	20c. \$	10c. \$	5c. \$	Total Silver \$	5c. \$	1c. \$	$\frac{1}{2}$ c. \$
1858 to 1907										
New Brunswick, 1861, 2 and 4.....				60,000	25,000	10,000	95,000		20,000	1,114
Nova Scotia, 1861, 2 Struck in Eng-land									26,000	4,000
Prince Edward Island, 1871.....									10,000	
Rest of Canada, 1858-1907.....		1,249,018	5,094,978	150,000	3,040,000	2,926,000	12,459,996		803,315	
Totals.....		1,249,018	5,094,978	210,000	3,065,000	2,936,000	12,554,996		859,315	5,114
GOLD										
	Sover-eigns £	\$10 \$	\$5 \$							
1908 to 1939										
1908	627,834	3,480,360	1,388,060							
1927										
1928										
1929										
1930										
1931										
1932										
1933										
1934										
1935										
1936										
1937										
1938										
1939										
Totals.....	627,834	3,480,360	1,388,060							

\*Of this amount \$15,000 returned in 1940.











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1940

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# ROYAL CANADIAN MINT

OTTAWA, March 12, 1941.

The Honourable  
The Minister of Finance,  
Ottawa, Ontario.

SIR:

The year 1940, from the point of view of coin demands for the Dominion, will no doubt constitute a record for many years to come. Not even during the whole period of the first Great War did minting operations exceed this first year of present hostilities in Europe. Definite reasons for the urgent coinage requirements are ascribed to the general increase in business and employment incident to the War, and the withdrawal from circulation of all United States currency by the public and banks owing to the higher premium on American money.

## COINAGE

There were no dollar coins struck or issued in 1940, but the issue of subsidiary coinage in denominations from 1 cent to 50 cents was 122,138,000 pieces, valued at \$6,328,300, and exceeded the previous year by 83,660,668 pieces, an increase in value of \$2,998,668.

A comparative statement of these issues by denominations for 1939 and 1940, is detailed below:—

	1939	1940
	\$	\$
SILVER COIN—		
1 dollar.....	1,220,732	.....
50 cents.....	144,000	968,000
25 cents.....	867,400	2,343,000
10 cents.....	561,900	1,534,000
NICKEL COIN—		
5 cents.....	321,000	660,500
BRONZE COIN—		
1 cent.....	214,600	822,800
	3,329,632	6,328,300

At the request of the Commissioner of Finance for the Government of Newfoundland, a coinage of 10 cents, 5 cents and 1 cent, legal currency of Newfoundland, was struck here from dies forwarded from the Royal Mint, London. The issue amounted to:—

	Value of Issue	Number of Pieces
	\$	
SILVER COIN—		
10 cents.....	10,000.00	100,000
5 cents.....	10,000.00	200,000
BRONZE COIN—		
1 cent.....	3,000.00	300,000
	23,000.00	600,000

## Worn and mutilated coin withdrawn from circulation:—

	Withdrawn	Net Increase in Circulation
	\$	\$
Silver Coin.....	122,104.30	4,722,895.70
Nickel Coin (mutilated only).....	1,173.55	659,326.45
Bronze Coin.....	7,336.93	815,463.07

## GOLD BULLION

Seven thousand two hundred and thirty-eight deposits of gold bullion were received at the Mint from mining companies and sundry persons, weighing 6,073,540 ounces, and 286 deposits were forwarded from the Dominion of Canada Assay Office, Vancouver, B.C., weighing 221,675 ounces. The total gross weight, including mutilated gold coin, was 6,295,219 ounces or 216 short tons, which contained by assay 4,990,847 ounces fine gold and 708,557 ounces fine silver. Although the number of deposits decreased by sixty-one compared with 1939, the gross weight of bullion received shows an increase of 113,882 ounces.

The average price paid for gold was \$38.4859 per ounce fine, and for silver 37.1577 cents per ounce fine.

After deducting Mint and Handling Charges, also postage collected for the Postmaster-General, the net amount paid at Ottawa to depositors by cheque was \$183,416,857.87 (including premium on gold). In addition, there were issued to depositors 3,912.836 ounces of fine gold with a statutory value of \$80,886.14.

Postage collected for the Postmaster-General amounted to \$35,466.50.

Details of deposits distributed as to origin are shown in the following table:—

Receipts of gold at Ottawa and at Vancouver were distributed as follows:—  
No. of deposits at Ottawa—7,238; at Vancouver—2,224.

	Gross Weight	Fine Gold	Fine Silver
	Ozs.	Ozs.	Ozs.
From Canadian Mines.....	6,251,351.480	4,968,614.757	702,765.37
Jewellery and Scrap.....	32,986.300	13,982.424	3,884.42
Foreign Gold Coin.....	15.650	14.040	.....
Mutilated Gold Coin.....	2.549	2.290	.....
Foreign Mines.....	9,163.325	4,739.493	1,376.03
	6,293,519.304	4,987,353.004	708,025.82
List of Mines—			
Ontario.....	4,005,077.450	3,202,648.539	425,219.47
Quebec.....	1,362,530.400	1,108,187.122	130,119.33
British Columbia.....	552,689.425	406,470.834	101,180.16
Manitoba.....	105,749.500	76,881.493	11,344.61
Yukon Territory.....	101,267.610	78,634.852	16,457.89
Nova Scotia.....	24,137.750	22,218.895	724.62
North West Territories.....	70,334.930	52,636.996	11,530.02
Alberta and Saskatchewan.....	29,564.415	20,936.026	6,189.27
	6,251,351.480	4,968,614.757	702,765.37

There were issued to the Bank of Canada 12,526 trade bars containing 4,995,717.772 ounces fine gold. The fine content of gold disposed of in the form of granulated, sweep, chlorides and residues, is detailed below:—

	Ozs. Fine
To Depositors.....	3,912.836
Sales to Manufacturers.....	18,623.136
Proof Plate.....	7.060
Medals.....	25.293
Sweep.....	8,501.029
Silver Chlorides.....	1.534
Copper Residues.....	4.068
	<hr/> 31,074.956

The total gold issued amounted to 5,026,792.728 ounces fine.

### OPERATIVE DEPARTMENT

Early in 1940 it became quite apparent that it would not be possible to meet the demand for coin without working longer hours and increasing the staff of directing officers, mechanics and craftsmen. Expansion in the requirements of coin for circulation during the entire year demanded the best efforts of every man and machine. At times there were as many as 15,000,000 pieces in requisitions outstanding to be filled urgently, for the Bank of Canada. Under intense pressure in the Coining Press Room, running twenty-four hours a day without stopping, and with the most careful attention being paid to the power-plant and machinery, aided by the co-operation of the staff who manned the presses during hours ordinarily set aside for meals and recreation, the record of striking 5,000,000 coins per week was attained.

During the first two weeks in February, a period normally quiet, it was necessary to work fourteen hours a day.

After a short lull, overtime was again commenced on March 4 with a ten-hour day which was increased to a fourteen-hour day by the middle of March. These long hours were continued until May 3, a period of ten weeks in all, and were abandoned only to be resumed again on May 27 owing to an ever-increasing demand. From May 27, there was no let-up in overtime work until the end of the year.

The one shift of fourteen hours was continued only until July 6. By this time it had become evident that the staff could not continue to work such long hours with maximum proficiency, and there was no lessening of requests for coin in sight. A good deal of consideration had been given to the question of starting two shifts and the change was made on July 8.

It had been considered advisable, if possible, to meet the call for extra coin by working longer hours. One important factor contributing to this is the necessity of checking in all the day's work done by each shift and balancing it. This must be done before the men leave the plant and creating two shifts practically doubled the supervisory work, which required the appointment of four Junior Mechanical Engineers by the Civil Service Commission, and two Clerks loaned from other departments of the Civil Service. In addition, it was necessary to take on forty-seven new Apprentices, and two Craftsmen, Grade 1, in the Mechanical Branch and Die-Room, in order to staff the plant fully for the two shifts. Taking on so many new men, of course, increased the danger of trouble and delays through accidents to both men and machinery. The qualifications that must be demanded of new recruits are considerable, and even those possessing mechanical, technical and engineering attainments, require months of training before they can be regarded as effective and experienced to supervise as control officers or to function in their full capacity as craftsmen in charge of delicate and intricate machines. It is greatly to the credit of the older and permanent staff that so few delays and break-downs were experienced.



However, the demand for coin, although it had already reached unprecedented proportions, continued to increase, and the two shifts were still well behind requirements at the end of August. Only by using three shifts in the Press Room and Examining Room was it possible, finally, to increase production to a point where it started overtaking demand.

To run three shifts it was necessary to make a number of decided changes. The output of the three rolling mills which supply the cutting presses is limited to a maximum production of 2,500,000 blanks weekly, working twenty hours daily. Without a reserve of blanks the coining presses striking 5,000,000 coins in the same period could not be kept in sufficient supply from the rolling and cutting machines. A new break-down mill was ordered, but delivery could not be made to help out the situation in time to satisfy the heavy demand for coin. We, therefore, purchased bronze blanks from the Scovill Manufacturing Company to supply the presses producing one-cent pieces. Forty million blanks were so purchased. This relieved the Melting House, Rolling Room and Cutting Room, and enabled them to release the additional men needed to make up a third shift in the Press and Examining Rooms. In order to keep the presses running almost constantly, one shift arrived before the next one left and the pressure of clerical work in keeping the accounts, time records, and in weighing and balancing for each shift with a minimum of lost time, required additional help.

During this period, which lasted from July 8 to November 16, with only one short interruption, the presses were kept going twenty-four hours a day, including Sundays. It is remarkable that the machinery was kept going at such a pace for about seventeen weeks steadily without any serious breakdowns. The motor-generator set supplying the power for these machines is over 30 years old.

Beginning November 18, Sunday work was discontinued and we went back to running two shifts of eight hours each throughout the plant. This arrangement proved adequate to supply the demand for the balance of the year.

The situation during the past twelve months was indeed overwhelming for a plant of limited capacity. Working regular hours, 30,000,000 pieces a year is considered normal, but 127,767,415 coins were produced for Canada and 600,000 coins for Newfoundland. This is an increase of 90,419,938 pieces over 1939, as shown in the comparative table below:—

	1939	1940
	Pieces	Pieces
<b>SILVER—800 fine</b>		
Dominion of Canada 1 dollar.....	1,363,816	.....
Dominion of Canada 50 cents.....	287,976	1,996,566
Dominion of Canada 25 cents.....	3,532,495	9,583,650
Dominion of Canada 10 cents.....	5,501,748	16,526,470
<b>NICKEL—pure</b>		
Dominion of Canada 5 cents.....	5,661,123	13,920,197
<b>BRONZE—</b>		
Dominion of Canada 1 cent.....	21,600,319	85,740,532
	37,947,477	127,767,415
<b>SILVER—925</b>		
Newfoundland 10 cents.....		100,000
Newfoundland 5 cents.....		200,000
<b>BRONZE—</b>		
Newfoundland 1 cent.....		300,000
		600,000
		128,367,415

Details of the production of coinage bars, blanks and good coins are summarized below:—

	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Pieces
<i>For Canada</i>				
SILVER (800 fine)—				
50 cents.....	1,547,706	1,459,674	902,512	1,996,566
25 cents.....	3,147,248	3,041,427	2,039,639	9,583,650
10 cents.....	2,391,415	2,179,950	1,376,675	16,526,470
Total Silver.....	7,086,369	6,681,051	4,318,826	28,106,686
NICKEL—				
5 cents.....				13,920,197
BRONZE—	Lbs.	Lbs.	Lbs.	
*1 cent.....	522,125	492,623	340,689	85,740,532
				127,767,415
<i>For Newfoundland</i>				
SILVER (925 fine)—	Ozs.	Ozs.	Ozs.	
10 cents.....	16,142	16,142	9,074	100,000
5 cents.....	21,318	14,674	8,463	200,000
Total Silver.....	37,460	30,816	17,537	300,000
BRONZE—	Lbs.	Lbs.	Lbs.	
*1 cent.....				300,000
	Short Tons 505·31	Short Tons 476·43	Short Tons 319·02	600,000
Total number of Pieces (Canadian and Newfoundland).....				128,367,415

\*In addition to the one-cent blanks cut at the Royal Canadian Mint, 312,309 lbs. of bronze blanks were purchased, annealed and edged, ready for coining.

### Melting House—

There were also 95,410·00 ounces of silver worn coin cast into 1,000-ounce ingots, 9,046·00 lbs. of bronze worn and mutilated coin melted into coinage bars, 2,120·00 ounces of fine silver and 515·00 lbs. of bronze granulated for alloy purposes, and 10,292·00 lbs of tin melted into slabs.

### Rolling Room—

A new Break-down Rolling Mill was purchased to supplement the output of the three rolling mills at present operating. The demands for coin, especially bronze, increased to such an extent that the Rolling Room was quite unable to deal with the weight of metal required to supply the requisite blanks for the coining presses. The additional mill has increased the production of rolled fillets about 25 per cent, keeping a constant supply of work going forward to the thinning and gauging mills, and, if necessary, the bars can be rolled direct to the proper gauge, as the increment adjustment of screwdown is designed for .0001".

Fifty thousand two hundred and sixty-nine lead discs were made from lead bars rolled for the Assay Office.

### Coining Press Room—

The total dies used in the Press Room were 2,569 (1,181 plus 1,388), divided as below for each denomination:—

—	Good Coin Produced	Dies Used		Total No. of Dies Used	Pairs of of Dies Used	Pieces per Pair of Dies
		Obverse	Reverse			
1 dollar.....						
50 cents.....	1,996,566	98	92	190	95	21,016
25 cents.....	9,583,650	252	400	652	326	29,398
10 cents.....	16,526,470	345	442	787	393.5	41,998
5 cents.....	13,920,197	123	107	230	115	121,045
1 cent.....	85,740,532	363	347	710	355	247,156
	127,767,415	1,181	1,388	2,569	1,284.5	99,476

This is an average of 99,476 pieces struck per pair of dies. The average number of one-cent pieces struck per pair of dies greatly exceeded any other year, viz., 247,156.

### Die and Medal Branch—

The total number of matrices, punches and dies manufactured during 1940 for Canadian coinage purposes was 2,588.

—	Obverse	Reverse
CANADA—		
1 dollar.....		
50 cents.....	78	96
25 cents.....	234	404
10 cents.....	358	458
5 cents.....	108	117
1 cent.....	372	363
NEWFOUNDLAND—		
10 cents.....	6	6
5 cents.....	12	12
1 cent.....	6	6

At the request of the Secretary of State, the Privy Seal of the Governor-General, the Earl of Athlone, was engraved by the Mint Engraver. (*Plate "A"*)

One Special Seal engraved with the Arms of the Governor-General, the Earl of Athlone, was made.

Two steel segmental signature die-blocks in reverse were made for the following officers: W. T. Shephard, J. A. LaRochelle, R. Golding and three for F. W. Holmes.

Extra signature die-blocks in reverse were made for the following officers: R. E. Davis, S. H. MacLaren and T. Anderson.

Two medals for the Royal Society of Canada, the Flavelle engraved "R. W. Boyle" and the Tyrell engraved "Chester Martin" were made.

Fifty-six R.C.M.P. Long Service and Good Conduct Medals, mounted with clasp and engraved with the recipients' names were struck and issued to the Commissioner of the Royal Canadian Mounted Police.



Matrices and punches for the Newfoundland coinage were received from the Royal Mint, London, from which the 10 cent, 5 cent and 1 cent dies were prepared.

### **Mechanical and Electrical Branch—**

The work devolving upon the staff of the Machine Shop, Die Room and Electrical Branch was very heavy throughout 1940, not only on the maintenance of plant and machinery, but in the manufacture of new machines and installation, and the making of improvements in existing equipment to increase efficiency and overcome hazards. Double shifts with overtime were frequently necessary to keep sufficient coinage dies on hand to supply the phenomenal demand for coins, and to overhaul and repair worn out parts and breakages after normal working hours.

To overcome the laborious and tedious hand-packing of coinage dies in the crucible containing powdered charcoal, an electrical vibrator was designed and built with a small metal table top, on which the crucible is placed. Used on the 60 cycle 115 volt lighting circuit, it vibrates at 7,200 vibrations per minute, shaking down the charcoal to a solid mass, and excluding all air from the die, in about three minutes.

The second electric furnace was built for the Annealing Room to be used in emergency on bronze or silver blanks. A control pyrometer was installed to serve the two furnaces, in conjunction with an electrical time-switch, which can be adjusted to bring the current on at any time necessary to have the furnace at the proper heat for annealing the blanks at the beginning of operations.

An improved lighting system was installed in the Examining Room to give a maximum light spread, reflected from the ceiling. By the use of six indirect units of 300 watts each, eyestrain due to long hours on night work was lessened, and the defective coins are now as easily distinguished as in the daylight.

The two-high Breakdown Rolling Mill was put in running order and the motor connections made by the staff of the Mechanical and Electrical Branch. This machine is one of the most modern of its kind with polished rolls of alloy cast-steel 14" diameter and 12" face. It stands on a base five feet by eleven feet, which supports all units of the entire mill, including the 30 h.p. motor. The main drive is totally enclosed in a welded steel casing, allowing lubrication of gears and bearings by means of an internal splash lubrication system. This arrangement and other new features render the mill practically silent in its operation, which is a great asset to the workmen. The delivery speed is 160 feet of fillets per minute.

Under the supervision of the Foremen of Mechanics and Electrical Branch, a Hardinge Conical Ball Mill was installed in the Refinery for the grinding of sweeps. The mill was mounted on two concrete piers on the basement floor to reduce vibration in the mill and also to the building. The material to be ground is conveyed from the top floor of the building by gravity into a storage bin suspended from the basement ceiling, from which it is fed by an automatic-weight feed machine, adjusted by weight, to the ball mill in sufficient quantity to ensure maximum output. Attached to the discharge end of the ball mill is a trommell screen of forty mesh wire. The mill is completely housed to prevent the dust from circulating in the atmosphere, the dust being carried off by an exhaust pipe to be reclaimed by the precipitator. Specially designed trucks were made, each holding 500 lbs. of sweep, to convey the finely ground material to the rotary mixer.

An unused motor was adapted to operate the mill at a considerable saving.

## ASSAY OFFICE

The Chief Chemist and Assayer reports as follows:—

The number of assays made from the 1st January to the 31st December, 1940, was as follows:—

### GOLD—

Refinages.....	6,590	
Rough Gold.....	32,818	
Proofs.....	3,436	
Parting Proofs.....	845	
Parting Buttons.....	13,517	
Miscellaneous.....	1,154	
Standard Gold (900).....	501	
		58,861

### SILVER—

Canadian Coinage Standard Bars.....	9,023	
Newfoundland (925) Coinage Bars.....	90	
Canadian Pyx.....	2,099	
Newfoundland Pyx.....	12	
Proofs.....	1,624	
Fine Silver.....	1,507	
Miscellaneous.....	221	
		14,576

### MISCELLANEOUS—

Mint Sweeps, Residues, etc.....	228	
Commercial.....	89	
Precious Metals Marking Act.....	75	
		392

Total number of assays.....	73,829
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The number of assays made during the year has only been exceeded once since the inauguration of the Mint in 1908, and that was in 1917 when the Refinery of the Mint was producing fine gold at the rate of one million ounces per month.

This gold was from South African crude gold that was refined at the Mint refinery for the Bank of England.

Representative samples taken from 18,493,500 nickel five-cent blanks (184,935 lbs.) supplied to the Mint were examined for composition and hardness and the blanks were found to comply in all respects with the specifications.

The mean finenesses of Canadian silver coinage struck during 1940 were as follows:—

Denomination	Standard Fineness	Mean Fineness
1 dollar (Nil).....	800.0	.....
50 cents.....	800.0	799.64
25 cents.....	800.0	800.19
10 cents.....	800.0	800.18



Coinage for the Government of Newfoundland was undertaken by the Mint during this year and the mean finenesses of the silver coinage struck were as follows:—

Denomination	Standard Fineness	Mean Fineness
10 cents.....	925.0	925.0
5 cents.....	925.0	925.5

Two fine gold working trial plates were made and fixed against the special proof plate and three fine silver working trial plates were made and fixed.

Seven ounces of fine gold trial plate and thirty-two ounces of fine silver trial plate were sold during the year.

A quantity of gold-plated rings and pen nibs, which on examination did not conform to the Marking Act, were destroyed for the Department of Trade and Commerce.

Several coins suspected of being counterfeits were examined for the Bank of Canada.

An electric time switch that controls the power to the Globar furnace, mentioned in last year's report, has been installed. This switch allows the heat to come on at any set time in the twenty-four hours for a period of seven days and is a great convenience and more economical.

Gold coin (900 fine) weighing 56,263 ounces, from the Bank of Canada, was melted and cast into ingots of approximately 400 ounces (trade bars) in the Refinery which accounts for the standard gold assays mentioned in the record of the assays made.

This coin could not be melted in bulk (about 8,000 ounces as in fine gold melting) owing to segregation that occurs on solidifying in an alloy of this composition (900 gold, 100 copper).

Trade bars are reported to one in ten thousand, whereas the legal tolerance in the coin is one in a thousand.

To ensure more homogeneous bars, an approximate weight of 400 ounces of coin was melted and cast into separate bars.

In the assay of this bullion the standard gold trial plate that was made and fixed in this Department (Annual Report of the Mint, 1931) was used for checks instead of fine gold trial plate. The standard trial plate is composed of gold and silver (gold 900, silver 100) and is of more uniform composition, there being no tendency towards segregation as with the gold and copper alloy.

The advantage in using this plate over a trial plate of fine gold, as a check, is that once the fineness has been established it may be used independently of the assay weights bearing the exact precision of 900 to 1000.

The standard weights that have been certified by the Standards' Department of the Board of Trade are only used for the purpose of establishing or fixing the finenesses of new working trial plates and periodically checking weights in constant use and are carefully preserved.

For several years before the new Refinery was occupied, the capacity of the silver reduction plant was not sufficient to cope with all the crude silver chloride produced in refining gold, with the result that there was an accumulation of about 80 tons of this material.

It was not practical to treat this along with the current chloride being produced. On the recommendation of this department, it was decided to dispose of it to a commercial refining company.

The grinding and mixing plant of the new Refinery was fully occupied with refinery sweeps, residues, etc., so arrangements were made with the Ontario Government Testing Laboratories at Cobalt to grind this material to minus 10 mesh and sample.

It was therefore shipped to their works at Cobalt in 20 ton lots and after grinding, etc., shipped direct from there to the refining company which had submitted the highest tender.

Representative samples were sent to the buyer and this department, the Testing Laboratory keeping a third sample, and on agreement of assays settlement was made.

The last consignment was settled for in January of this year, the total amount being 80.7 tons and the average assay being gold 0.0784 ounces per ton, silver 12,589.17 ounces per ton or 43.163 per cent silver.

The nitrous fumes from the cupboard in the furnace room, where the parting by nitric acid in gold assays is carried on, were drawn by a Duriron exhaust fan into a chimney.

These fumes had eventually eaten through the brick work in the chimney and were escaping into the office, so, to remedy this, a flue made from a special acid-resisting steel (Allegheny metal) has been installed, connecting with the exit of the exhaust fan and passing directly through the roof to the open air.

## REFINERY

During the year, the Refinery received 7,524 deposits with a gross weight of 6,295,216 ounces containing 4,990,845 ounces of fine gold and 708,557 ounces of fine silver.

Twelve thousand four hundred and forty-nine gold Trade Bars with a gross weight of 4,982,563 ounces containing 4,965,550 ounces of fine gold at an average assay of 996.59, granulated gold with a gross weight of 18,896 ounces containing 18,894 ounces of fine gold at an average assay of 999.88, and silver bars with a gross weight of 765,694 ounces containing 764,996 ounces of fine silver with an average assay of 999.09 were delivered to the Mint Office; also, granulated silver with a gross weight of 3,123 ounces and containing 3,121 ounces of fine silver at an average assay of 999.5.

One hundred and fifty-five thousand eight hundred and eight ounces of the total amount of deposits received were remelted and 9,979 ounces toughened before uniform assays could be obtained.

Sweep amounting to 75.11 tons was obtained from all Refinery operations, and concentrates amounting to 2,577 ounces of fine gold and 2,522 ounces of fine silver were recovered.

Eight thousand five hundred and one ounces of fine gold and 64,952 ounces of fine silver, recovered from sweep collected, were sold during 1940.

Chloride containing 2 ounces of fine gold and 498,443 ounces of fine silver was sold during the year.

Fifty-six thousand two hundred and sixty-four ounces of gold coin, received from the Bank of Canada, were melted and cast into bars of approximately 400 ounces and delivered to the Mint Office.

## DOMINION OF CANADA ASSAY OFFICE, VANCOUVER, B.C.

The amount disbursed for gold was \$6,685,353.07.  
Distribution for 1940:—

—	Gross Weight	Fine Gold	Fine Silver
	Ozs.	Ozs.	Ozs.
Yukon Territory.....	98,486.810	77,360.035	16,176.28
British Columbia.....	113,665.510	94,300.512	14,537.25
Alberta and Saskatchewan.....	368.290	280.552	27.10
North West Territories.....	34.880	19.170	2.46
Total Mines.....	212,555.490	171,960.269	30,743.09
Jewellery and Scrap.....	7,420.650	3,340.822	1,079.08
Total.....	219,976.140	175,301.091	31,822.17

No. of Deposits—2,224.

There was a slight decrease in the amount of bullion received in this office in 1940 as compared with that of 1939, as shown below:

—	Gross Weight	Fine Gold	Fine Silver
	Ozs.	Ozs.	Ozs.
1940.....	219,976.140	175,301.091	31,822.17
1939.....	221,137.000	178,707.286	30,235.32

although there was an increase in the amount disbursed of \$242,987.26, due to a higher rate of premium.

### GENERAL

Officers of the Auditor General's Department conducted the stocktaking and inspection of the store of bullion and coin in March, as required by the Act establishing the Royal Canadian Mint.

The Assay Commissioners, Dr. D. C. Rose and Mr. C. W. Davis of the National Research Council and Mr. R. J. Traill of the Department of Mines and Resources, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1939, have been coined in accordance with the provisions of the said Act, were sworn in before His Honour, Judge E. J. Daly, and in the presence of Mr. D. M. Johnson, Solicitor to the Treasury, on the 7th May, 1940.

The findings of these gentlemen indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act, with the exception of one ten-cent piece which they reported to have a millesimal fineness greater than the prescribed remedy by four-tenths of one unit of millesimal fineness.\*

Six Craftsmen and Apprentices were given leave or resigned to enlist for active service in various units of the Canadian Forces.

\*The 10c. coin found to be slightly over remedy in fineness was reported on the result of one assay only.



At the end of the year 1939, the total number of persons employed in the Mint and Refinery was 135. Of these, 79 comprised the permanent administrative, scientific and office staff, and permanent craftsmen, the remaining 56 being temporary. The establishment at the end of 1940 was 189, an increase of 54, the permanent staff numbering 79 and the temporary 110. In order to meet the heavy and urgent demands for coin referred to in the foregoing of this report and the inauguration of two and three shifts in the Operative Department, extra men were taken on under "War Appropriation".

The officers in charge of the five departments of the Mint, responsible to the Master for the efficient operation of their own branches, are: Secretary, Lt.-Col. G. V. W. Howard, V.D.; Superintendent of the Operative Department, R. J. Edmunds; Chief Chemist and Assayer, A. L. Entwistle, F.I.C., M. Inst. M.M.; Refinery Superintendent, P. W. Bond, and Manager, Dominion of Canada Assay Office, Vancouver, B.C., G. N. Ford.

Mr. R. C. Roe, Foreman of Mechanics, retired in January after thirty-two years' excellent service in the Mint.

Mr. H. S. Low, Engraver, was also superannuated during the year, after serving as Engraver since the opening of the Mint in 1908. Mr. Low has the unique record of engraving the Privy Seals of nine Governors-General in succession, from the time of Lord Aberdeen in 1894 to Lord Tweedsmuir in 1935.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada.

I am, Sir,

Your obedient Servant,

H. E. EWART,  
*Master, Royal Canadian Mint.*

## APPENDIX A

SUMMARY OF TRANSACTIONS IN GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1908, to its disestablishment on the 30th November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1940.

Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	Value Coin and Bullion
	Ozs.	\$	\$	Ozs. Fine	\$
1908 to 30th Nov., 1931...	34,321,068·750	591,419,217·02	7,923,878·73	28,141,076·806	589,651,570·24
1931—1st to 31st Dec.....	299,973·100	5,100,968·08	.....	189,512·838	3,917,577·86
1932.....	3,520,276·570	58,491,549·39	.....	2,873,221·290	59,394,754·05
1933.....	3,331,905·174	53,819,014·01	.....	2,589,648·765	53,532,789·33
1934.....	3,888,848·540	62,201,080·02	.....	3,038,018·961	62,801,423·68
1935.....	3,996,131·927	65,297,776·55	.....	3,177,497·360	65,684,697·95
1936.....	4,552,289·960	74,487,536·98	.....	3,625,548·842	74,946,744·64
1937.....	4,959,970·893	81,311,693·73	.....	3,937,910·698	81,403,837·11
1938.....	5,601,260·642	90,920,063·13	.....	4,308,067·369	89,055,654·13
1939.....	6,181,336·290	100,656,105·55	.....	4,834,214·285	99,932,075·82
1940.....	6,295,218·554	103,169,970·38	30·00	5,026,792·728	103,913,055·43
	76,948,280·400	1,286,874,974·84	7,923,908·73	61,741,509·942	1,284,234,180·24









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CANADA

(DEPARTMENT OF FINANCE)

Canada

# ROYAL CANADIAN MINT

Report  
For the Calendar Year  
1941

OTTAWA  
EDMOND CLOUTIER  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1942











CANADA

DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year  
1941

Published by Authority of the HON. J. L. ILSLEY, K.C., M.P.,  
MINISTER OF FINANCE

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1942





# ROYAL CANADIAN MINT

OTTAWA, March 10, 1942.

The Honourable  
The Minister of Finance,  
Ottawa, Ontario.

SIR:

I have the honour to submit, for your consideration, the report of the operations of the Royal Canadian Mint for the calendar year 1941.

## COINAGE

During 1941 the Mint Service continued very active, operating 16 to 24 hours daily for the greater part of the year to keep up with the requisitions by the Bank of Canada for coin of denominations below the dollar.

The continued, unprecedented demand for subsidiary coin in 1940 and 1941 is doubtless due to war activities, general acceleration of business transactions and increased earnings of the people, resulting in expenditures for essential and non-essential goods to satisfy their wants, of which many had been deprived through lack of purchasing power previous to the war.

Although coinage issues exceed 84,000,000 pieces, peak production was maintained in the Coining Division to meet all requirements for coin without recourse to the purchase of any blanks, as had been found necessary in 1940.

As in previous years, the one-cent coin was greatly in demand; over 57,000,000 pieces of this denomination were issued in 1941, and 82,000,000 in 1940.

A comparative statement of the value of coin issued, by denomination in 1940 and 1941, is detailed below:—

Denomination	Coin issued in	
	1940	1941
	\$	\$
SILVER COIN—		
1 dollar.....	Nil	Nil
50 cents.....	968,000	842,000
25 cents.....	2,343,000	1,718,000
10 cents.....	1,534,000	974,000
	4,845,000	3,534,000
NICKEL COIN—		
5 cents.....	660,500	454,000
BRONZE COIN—		
1 cent.....	822,800	575,300
Total.....	6,328,300	4,563,300
Representing.....	Number of Pieces	
	122,138,000	84,906,000

The distribution of the coin issued to the Agents of the Bank of Canada, situated at the various Provincial centres, was as follows:—

	Silver				Nickel	Bronze
	\$	50 cents	25 cents	10 cents	5 cents	1 cent
Calgary.....		38,000	152,000	58,000	29,000	33,500
Charlottetown.....			12,000	6,000	3,500	1,300
Halifax.....		40,000	140,000	74,000	38,000	35,000
Montreal.....		126,000	430,000	250,000	110,000	115,000
Ottawa.....		62,000	122,000	90,000	24,500	13,500
Regina.....		8,000	120,000	30,000	14,000	25,000
St. John.....		14,000	92,000	46,000	15,000	18,500
Toronto.....		406,000	440,000	290,000	180,000	243,000
Vancouver.....		98,000	32,000	50,000	21,000	50,500
Winnipeg.....		50,000	178,000	80,000	19,000	40,000
.....		842,000	1,718,000	974,000	454,000	575,300

In addition to the above coinages for domestic use, 1,923,933 pieces of 10 cents, 5 cents and 1 cent denominations were executed for the Government of Newfoundland. The issues amounted to:—

	Value of Issue	Number of Pieces
<b>SILVER COIN—</b>		
10 cents.....	\$ 48,363.00	483,630
5 cents.....	30,632.05	612,641
<b>BRONZE COIN—</b>		
1 cent.....	8,276.62	827,662
	87,271.67	1,923,933

Worn and mutilated coin withdrawn from circulation:—

	Withdrawn	Net Increase in Circulation
	\$	\$
Silver Coin.....	138,819.55	3,395,180.45
Nickel Coin (mutilated only).....	1,769.90	452,230.10
Bronze Coin.....	18,967.07	556,332.93

### GOLD BULLION

Seven thousand one hundred and forty-one deposits of gold bullion were received at the Mint from Canadian mining companies and sundry persons, weighing 6,244,736 ounces, and 260 deposits from the Dominion of Canada Assay Office, Vancouver, B.C., weighing 199,315 ounces. The total gross weight, including mutilated gold coin, was 6,444,056 ounces, or 221 short tons, which contained by assay 5,092,609 ounces fine gold and 746,921 ounces fine

silver. Compared with 1940, the number of deposits decreased by 123 but the gross weight of bullion received increased by 148,838 ounces.

The average price paid for gold was \$38·4827 per ounce fine, and for silver 37·1473 cents per ounce fine.

After deducting Mint and Handling Charges, also postage collected for the Postmaster-General, the net amount paid at Ottawa to depositors by cheque was \$187,899,335.03 (including premium on gold). In addition, there were issued to depositors 4,865,402 ounces of fine gold with a statutory value of \$100,577.20.

Postage collected for the Postmaster-General amounted to \$38,175.50.

There were 1,978 rough gold deposits received at Vancouver and 7,141 deposits at Ottawa. Details relating to the origin of these deposits are shown in the following statement:—

Source	Gross Weight	Fine Gold	Fine Silver
	Ozs.	Ozs.	Ozs.
From Canadian Mines.....	6,419,500·230	5,080,004·223	743,498·65
Jewellery and Scrap.....	27,038·535	12,227·477	3,433·51
Foreign Gold Coin.....	963·300	908·705	.....
Mutilated Gold Coin.....	5·150	4·640	.....
	6,447,507·215	5,093,145·045	746,932·16
List of Mines—			
Ontario.....	3,976,329·150	3,165,508·723	432,040·00
Quebec.....	1,529,243·000	1,242,037·652	154,626·55
British Columbia.....	569,040·160	409,932·765	108,543·29
Manitoba.....	109,824·225	79,766·876	11,307·80
Yukon.....	88,940·750	71,397·192	14,204·82
Nova Scotia.....	21,180·575	19,169·727	671·62
North West Territories.....	97,829·500	74,028·734	15,659·69
Alberta and Saskatchewan.....	27,112·870	18,162·554	6,444·88
	6,419,500·230	5,080,004·223	743,498·65

There were issued to the Bank of Canada 12,720 trade bars containing 5,077,230·825 ounces fine gold, which had been refined and cast in the Mint Refinery from the rough gold deposits received from the various sources mentioned.

The fine content of gold disposed of in the form of granulated, sweep, proof plates and medals is detailed below:—

	Ounces Fine
To Depositors.....	4,865·402
Sales to Manufacturers.....	41,541·278
Proof Plate.....	8·000
Medals.....	4·558
Sweep.....	10,697·742
	57,116·980

The total gold issued amounted to 5,134,347·805 ounces fine, an increase over the year 1940 of 300,134 ounces fine.

## OPERATIVE DEPARTMENT

Although there was a decrease in the number of coins produced in 1941, compared with 1940, production was very much above the normal capacity of the Coining Division and could not have been accomplished without many months of overtime work.

Advantage was taken of the period of slackening off in coinage requirements, during the first few months of the year, to accumulate a reserve of bars and blanks. A stock of semi-processed bullion was thus provided which enabled the Press Room to operate on a full 24-hour basis when the demand for coin became acute, and made unnecessary the purchase of one-cent blanks from an outside contractor during 1941.

Thirty-four Apprentice Mint Craftsmen who had been employed since July, 1940, in a temporary capacity under "War Appropriation" were released in February, 1941.

By the end of May 29,500,000 blanks and good coin were stored in the Mint strongholds, the blanks ready for striking and the coin "told" and packed for immediate issue. When the rush came in June, this stock was soon depleted. Three shifts of eight hours each in the Press Room, and overtime to 9 o'clock p.m. in the other branches, commenced on the 15th July to keep pace with the orders for coin, which averaged nearly 3,000,000 pieces weekly until the end of the year.

The Staff was augmented in July by 30 Apprentice Mint Craftsmen and 8 Grade 1 Craftsmen to man the machines while working on the extra shifts. The apprentices appointed were all under 18 years of age in accordance with Order in Council P.C. 4759, of the 27th June, 1941, which forbids the employment of males between 18 and 45 unless ineligible for service with the Armed Forces.

In addition to the production of specie for Canada and Newfoundland, special work on munition parts was performed on behalf of the British Admiralty Technical Mission. 77,500 Pressure Plates for the Percussion Fuze of 15-inch shells were struck on the Coining Presses which had to be adapted to suit this unusual class of work. Each Pressure Plate required 32 treatments, including 6 operations. Special dies, tools and gauges of intricate design, accurate in dimensions to 1/10,000 of an inch were made by our own artificers.

It was quite expected that production in 1941 should relax to some extent after the heavy output of 1940, and the comparative table below shows the good coins produced in these years, both for domestic use and on behalf of the Government of Newfoundland:—

	1940	1941
	Pieces	Pieces
<b>SILVER—800 fine</b>		
Dominion of Canada 1 dollar.....	1,996,566	1,714,874
Dominion of Canada 50 cents.....	9,583,650	6,654,672
Dominion of Canada 25 cents.....	16,526,470	8,716,386
Dominion of Canada 10 cents.....		
<b>NICKEL—</b>		
Dominion of Canada 5 cents.....	13,920,197	8,681,785
<b>BRONZE—</b>		
Dominion of Canada 1 cent.....	85,740,532	56,336,011
<b>Total Canadian.....</b>	<b>127,767,415</b>	<b>82,103,728</b>



	1940	1941
	Pieces	Pieces
SILVER—925 fine		
Newfoundland 10 cents.....	100,000	483,630
Newfoundland 5 cents.....	200,000	612,641
BRONZE—		
Newfoundland 1 cent.....	300,000	827,662
Total Newfoundland.....	600,000	1,923,933
Total Canadian and Newfoundland.....	128,367,415	84,027,661

Details of coinage bars, blanks and good coins produced in the Melting House and Coining Branches are summarized below:—

	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Ozs.
<i>For Canada</i>				
SILVER (800 fine)—				
50 cents.....	882,259.85	925,464.75	573,038.66	642,520.03
25 cents.....	1,751,494.60	1,809,195.55	1,223,668.01	1,248,438.88
10 cents.....	1,079,937.15	1,009,497.45	642,296.48	653,236.70
Total Silver.....	3,713,691.60	3,744,157.75	2,439,003.15	2,544,195.61
NICKEL (pure)—				Lbs.
5 cents.....				86,327.50
BRONZE—	Lbs.	Lbs.	Lbs.	
1 cent.....	561,350.80	598,745.61	405,832.00	401,871.01
<i>For Newfoundland</i>	Ozs.	Ozs.	Ozs.	Ozs.
SILVER (925 fine)—				
10 cents.....	114,463.00	60,084.40	37,469.03	36,313.66
5 cents.....		51,566.10	25,984.84	23,256.96
Total Silver.....	114,463.00	111,650.50	63,453.87	59,570.62
BRONZE—	Lbs.	Lbs.	Lbs.	Lbs.
1 cent.....	Included in Canadian Total	Included in Canadian Total	Included in Canadian Total	5,906.45
	Short Tons 411.93	Short Tons 431.58	Short Tons 288.73	Short Tons 336.28

### Melting House—

There were also 100,150.00 ounces of worn coin cast into 1,000-ounce ingots; 22,320 lbs. of bronze worn and mutilated coin melted into one-cent coinage bars; 2,000 ounces of fine silver granulated, and 7,072 lbs. of tin melted into slabs for bronze alloy.

### Rolling Room—

The additional work performed in the Rolling Room consisted of:—

- (1) One thousand, one hundred and twenty-four ounces of fine silver rolled for discs to be used in the Assay Office.
- (2) Sixty-seven thousand, nine hundred and eighty-four lead discs were made from lead bars rolled for the Assay Office.

### Coining Press Room—

The dies used in the Press Room for coinage purposes totalled 2,092 (986 obverse and 1,106 reverse dies). The number of dies used by denominations is set out in the following table:—

Denomination	Good Coin Produced	Dies Used		Total No. of Dies Used	Pairs of Dies Used	Pieces per Pair of Dies
		Obverse	Reverse			
1 dollar.....	.....	.....	.....	.....	.....	.....
50 cents.....	1,714,874	59	33	92	46.0	37,280
25 cents.....	6,654,672	184	238	422	211.0	31,539
10 cents.....	8,716,386	167	379	546	273.0	31,928
5 cents.....	8,681,785	93	82	175	87.5	99,220
1 cent.....	56,336,011	483	374	857	428.5	131,473
	82,103,728	986	1,106	2,092	1,046.0	78,493

The presses, while striking Pressure Plates for the British Admiralty Technical Mission, were fitted with a cast-iron block or table 12" x 12" x 2 $\frac{3}{8}$ " to hold the bottom die. The ordinary table used for coinage was not strong enough to withstand the force of the upper die required to form the Pressure Plate. Six pairs of dies of different sizes were required, one pair for each operation to each component part in order to strike it gradually into the finished product. There were 77,500 Pressure Plates passed by the Inspection Branch of the British Admiralty Technical Mission and shipped to the contractor.

### Die and Medal Branch—

Double shifts and much overtime was necessary to have sufficient coinage dies on hand for the presses to keep running continuously to supply the heavy output of coin demanded of us. The total number of matrices, punches and dies manufactured during 1941 for Canadian and Newfoundland coinage was 2,198.

	Obverse	Reverse
<b>FOR CANADIAN COINAGE—</b>		
1 dollar.....	.....	.....
50 cents.....	60	39
25 cents.....	186	239
10 cents.....	160	383
5 cents.....	84	85
1 cent.....	462	385
<b>FOR NEWFOUNDLAND COINAGE—</b>		
10 cents.....	12	12
5 cents.....	30	36
1 cent.....	6	12

Two hardened steel signature blocks (flat) were made for an auxiliary printer, and one steel signature block (curved) for a special signing machine was engraved for the Treasury Office, Department of Pensions and National Health, with the signature of H. H. Hester. Also made were one flat signature block with the signature of T. Anderson, and two flat blocks and one curved block with the signature of J. R. Dawson.

Seventy-nine R.C.M.P. Long Service and Good Conduct Medals, mounted with clasp, and engraved with the recipients' names were struck and issued to the Commissioner of the Royal Canadian Mounted Police.

Two gold medals were struck for the Royal Society of Canada, the Flavelle Medal engraved "Thomas L. Walker, 1941", and the Tyrrell Medal engraved "Arthur S. Morton, 1941". Three Gold Medals of 10 carat fineness were struck for the Engineering Institute of Canada, the Gzowski, Leonard and Plummer Medals. Two new medal awards in tombac were also struck of the Sir John Kennedy Medal and the Julian C. Smith Medal.

### **Mechanical and Electrical Branch—**

Both departments have been actively employed, owing to the continued heavy coinage programme and gold refining, in the maintenance of plant and equipment in good running condition.

The three 75 H.P. boilers were thoroughly cleaned and overhauled during the summer months and passed by the Inspector of the Public Works Department.

A spare machine for making cupels in the Assay Office was made and assembled in the Machine Shop owing to the impossibility of purchasing this apparatus in war time from the original manufacturer.

A motor-driven band saw for cutting metal was purchased to cut the copper rods in suitable sizes for Pressure Plates.

An oxygen-acetylene combination cutting and welding outfit was installed. With this apparatus, many iron pots for annealing blanks in the electric furnace were welded, a new steel tank for the scale-buoy was made and a steel tank for plunging coinage bars in the Melting House was fabricated and welded. The production of this equipment in our own plant is a considerable saving in cost and removes our dependency upon outside firms when material is difficult to procure.

Twelve fluorescent lighting fixtures were installed over the Assay balances in the Assay Office. Special shades and brackets were made under the supervision of the Foreman of the Electrical Branch. Also six fluorescent fixtures were installed in the Mint Office.

Five pans made of fine silver, rolled to .070", to be used for drying the gray silver from chlorides in the Refinery were fabricated and set up in the Refinery fine silver Melting Room.

Other repair and renewal work done in this Branch throughout the year was of the following varied character:—

Iron tongs for lifting all shapes and sizes of hot crucibles; iron paddles for stirring bullion in solution; ladles for dipping and pouring molten metal; copper colanders and drums for blanching silver blanks in the Annealing Room; the manufacture of beech sawdust for drying bronze blanks; iron scrapers for redeeming residue from crucibles; steel collars for coinage; platform trucks for the Refinery and many other items too numerous to mention.

Among the articles salvaged were 11,500 lbs. of scrap iron and steel, 1,270 lbs. of copper and brass and 600 lbs. of lead. This material was sold through the Salvage Division of the Dominion Government to assist as much as possible in the war effort.

## ASSAY OFFICE

The Chief Chemist and Assayer reports as follows:—

The number of assays made from the 1st January to the 31st December, 1941, was as follows:—

## GOLD—

Refinages.....	6,256	
Rough Gold.....	31,837	
Proofs.....	3,221	
Parting Proofs.....	810	
Parting Buttons.....	13,049	
Miscellaneous.....	1,255	
		56,428

## SILVER—

Canadian Coinage Standard Bars.....	4,281	
Newfoundland (925) Coinage Bars.....	146	
Canadian Pyx.....	1,443	
Newfoundland Pyx.....	36	
Proofs.....	945	
Fine Silver.....	1,085	
Miscellaneous.....	107	
		8,043

## MISCELLANEOUS—

Mint Sweeps, Residues, etc.....	262	
Commercial.....	4	
Precious Metals Marking Act.....	108	
Nickel and other metal determinations.....	156	
		530

Total number of assays..... 65,001

Representative samples taken from 8,689 nickel five-cent blanks (86,889·68 lbs. av.) supplied to the Mint were examined for composition and hardness, and the blanks were found to comply in all respects with the specifications.

The mean finenesses of Canadian Silver Coinage struck during 1941 were as follows:—

Denomination	Standard Fineness	Mean Fineness
50 cents.....	800·0	799·49
25 cents.....	800·0	799·85
10 cents.....	800·0	799·56

Coinage for the Government of Newfoundland was undertaken by the Mint during the year under review and the mean finenesses of the silver coinage struck were as follows:—

Denomination	Standard Fineness	Mean Fineness
10 cents.....	925·0	925·33
5 cents.....	925·0	925·43

Two fine gold working trial plates were made and fixed against the special proof plate, and two fine silver trial plates were made and fixed.



Eight ounces of fine gold trial plate and twenty-four ounces of fine silver trial plate were sold during the year.

A quantity of gold-plated pen nibs, which, on examination, were found not to conform to the Marking Act, were destroyed for the Department of Trade and Commerce.

Several coins, suspected of being counterfeits, were examined for the Bank of Canada and the Royal Canadian Mounted Police.

### REFINERY

During the year the Refinery received 7,404 deposits (7,144 from mines and miscellaneous depositors and 260 from the Vancouver Assay Office) containing 5,092,604 ounces of fine gold and 746,921 ounces of fine silver. Three rejected deposits are included in the above number of deposits received.

Twelve thousand, five hundred and ninety-four fine gold trade bars with a gross weight of 5,042,931 ounces, containing 5,027,045 ounces of fine gold at an average assay of 996·85; granulated gold with a gross weight of 47,904 ounces, containing 47,897 ounces of fine gold at an average assay of 999·85, and silver bars with a gross weight of 729,538 ounces, containing 728,913 ounces of fine silver with an average assay of 999·14 were delivered to the Mint Office.

Four hundred and twenty-five decimal four one five ounces of granulated fine gold were received from the Mint Office which was poured into a bar weighing 425·169 ounces fine and returned to the Mint Office; also, granulated gold weighing 154·314 ounces fine, worn coin weighing 4·640 ounces fine and medal scrap weighing 99·180 ounces fine were received from the Mint Office.

Eight ounces of fine gold and 24 ounces of fine silver were delivered to the Assay Office for the manufacture of fine gold and silver trial plates.

One hundred and fifty-one thousand, nine hundred and ninety-nine ounces of the total amount of deposits received were remelted and 6,468 ounces toughened before uniform assays could be obtained.

Sweep amounting to 79·206 tons was recovered, ground, barrelled and sampled, and, of this amount, 74·525 tons were assayed and contained 12,374 ounces of fine gold and 90·961 ounces of fine silver. Seventy-six decimal seven one six tons of sweep containing 10,698 ounces of fine gold and 78,349 ounces of fine silver were sold during the year.

Seven hundred and twenty-nine thousand five hundred and thirty-eight ounces of fine silver bars were produced from the treatment of 1,506,919 ounces of base and silver chlorides.

### DOMINION OF CANADA ASSAY OFFICE, VANCOUVER, B.C.

A total of \$6,216,906·58 was disbursed through this Office for gold purchased from various mines and sundry persons. Particulars of source and weights are as follows:—

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ozs.	Ozs.	Ozs.
Yukon Territory.....	387	88,873·55	71,340·341	14,198·83
British Columbia.....	1,246	106,713·16	88,353·480	13,228·74
Alberta and Saskatchewan.....	56	347·17	268·881	25·95
North West Territories.....	11	54·30	39·074	7·07
Jewellery and Dental Scrap.....	278	6,778·01	3,012·282	1,002·13
	1,978	202,766·19	163,014·058	28,462·72



Instead of the expected increase in the amount of gold to be deposited during the year just ended, the fine gold content in deposits was roughly 12,000 troy ounces short of the total for the year 1940.

This is attributable in part to a shortage of water in some districts of British Columbia and in the Yukon Territory where, at the end of last winter and just prior to the opening of the mining season, there was comparatively little snow, and the condition was aggravated by an unusually dry season. As a result, the power plant of the Yukon Consolidated Gold Corporation, Ltd., closed down earlier in the Fall than usual with consequent curtailment of production.

Since the commencement of the war, four men have enlisted from the Staff of this office and have been granted Military Leave, viz.: C. D. Cannon, Chief Melter, since September, 1939, with the rank of Major in the Irish Fusiliers of Canada, Vancouver Regt., Active Army. M. J. A. MacDonald, Apprentice Mint Craftsman, left us in August last for the Royal Canadian Air Force, and in December, A. D. Hall, Typist, enlisted in the Royal Canadian Air Force.

A. B. Coy, Mint Craftsman, Grade 1, has also just been granted leave to join the Royal Canadian Air Force and expects to be sent to a Training Centre late in January.

## GENERAL

The annual stocktaking and inspection of the store of bullion and coin, as required by the Act establishing the Royal Canadian Mint, was conducted by the officers of the Auditor General's Department in March, the results of which will be found in the Auditor General's report.

The Assay Commissioners, Dr. D. C. Rose and Mr. C. W. Davis of the National Research Council, and Mr. R. J. Traill of the Department of Mines and Resources, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1940 have been minted in accordance with the provisions of the said Act, were sworn in by His Honour, Judge E. J. Daly, and in the presence of Dr. A. K. Eaton, Taxation Investigator, as representative of the Department of Finance, on the 6th day of May, 1941.

The findings of these gentlemen indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act.

Twenty-five Craftsmen and Apprentices were given Military Leave or resigned to enlist in the Armed Forces.

At the end of 1941 the total number of persons employed was 177. Of these, 73 comprised the permanent administrative, scientific and office staff and permanent Mint Craftsmen. The remaining 104 were clerks and craftsmen employed as temporary and under war appropriation.

Major E. V. Murray, Supervisor in the Mint Office, returned to duty from active service in England owing to ill-health.

Mr. G. V. W. Howard, Secretary of the Mint, retired on the 31st December, after a total service of more than 34 years. Appointed originally as Bullion Clerk, Mr. Howard steadily progressed to the post of Secretary in 1932. Serving in the Great War, 1914-1918, and afterwards continuing with the Military Forces in Canada, Mr. Howard rose to the rank of Lieutenant-Colonel before his retirement.

The vacancy caused by Mr. Howard's retirement was filled by the promotion of Mr. A. P. Williams, Departmental Accountant, Grade 3.

Mr. E. V. Murray, Supervisor, Grade 2, in the Mint Office, was promoted to fill Mr. Williams' position.

The officers in charge of the various branches of the Mint, responsible to the Master, are Messrs. A. P. Williams, Secretary; R. J. Edmunds, Superintendent of the Operative Department; A. L. Entwistle, F.I.C., M.Inst., M.M., Chief Chemist and Assayer; P. W. Bond, Refinery Superintendent, and G. N. Ford, Manager, Dominion of Canada Assay Office, Vancouver, B.C.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada since 1858.

I am, Sir,

Your obedient Servant,

H. E. EWART,  
*Master, Royal Canadian Mint.*

## APPENDIX A

SUMMARY OF TRANSACTIONS IN GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1908, to its disestablishment on the 30th of November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1941.

Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	Value, Coin and Bullion
1908 to 30th Nov., 1931.....	Ounces	\$	\$	Ounces Fine	\$
1931—1st to 31st Dec.....	34,321,068.750	591,419,217.02	7,923,878.73	28,141,076.806	589,651,570.24
1932.....	299,973.100	5,100,968.08	.....	189,512.838	3,917,577.86
1933.....	3,520,276.570	58,491,549.39	.....	2,873,221.290	59,394,754.05
1934.....	3,331,905.174	53,819,014.01	.....	2,589,648.765	53,532,789.33
1935.....	3,888,848.540	62,201,080.02	.....	3,038,018.961	62,801,423.68
1936.....	3,996,131.927	65,297,776.55	.....	3,177,497.360	65,684,697.95
1937.....	4,552,289.960	74,487,536.98	.....	3,625,548.842	74,946,744.64
1938.....	4,959,970.893	81,311,693.73	.....	3,937,910.698	81,403,837.11
1939.....	5,601,260.642	90,920,063.13	.....	4,308,067.369	89,055,654.13
1940.....	6,181,336.290	100,656,105.55	.....	4,834,214.285	99,932,075.82
1941.....	6,295,218.554	103,169,970.38	30.00	5,026,792.728	103,913,055.43
1941.....	6,444,056.215	105,273,560.67	.....	5,134,347.805	106,136,385.78
83,392,336.615	1,392,148,535.51	7,923,908.73	66,875,857.747	1,390,370,566.02	











Government  
Publications

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Publications



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RM

- R74

Government  
Publications



CANADA

(DEPARTMENT OF FINANCE)

*Canada* ROYAL CANADIAN MINT

Report  
For the Calendar Year  
1942

OTTAWA  
EDMOND CLOUTIER  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1943











PLATE I



PLATE II

(Enlarged)



CANADA

DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year

1942

Published by Authority of the HON. J. L. ILSLEY, K.C., M.P.,  
Minister of Finance

OTTAWA  
EDMOND CLOUTIER  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1943





# ROYAL CANADIAN MINT

OTTAWA, March 15, 1943.

The Honourable  
The Minister of Finance,  
Ottawa, Ontario.

SIR:

I have the honour to submit for your consideration the report of the operations of the Royal Canadian Mint for the calendar year 1942.

## COINAGE

The demand for subsidiary coin during 1942 made it necessary, as in the year 1941, to continue operations 16 to 24 hours daily, and, in addition, to increase the staff of Mint Craftsmen.

Coinage issues during the year 1942 amounted to 108,186,000 pieces, an increase of 23,280,000 pieces over the issues for 1941 of 84,906,000 pieces.

In order to assist in conserving nickel for war purposes, a 5-cent coin, dodecagonal in shape, and composed of copper and zinc, has been substituted for the 5-cent pure nickel coin. The new coin is described in detail later in this Report.

The total number of pieces of good coin produced in 1942 was 105,481,533 as against 82,103,728 pieces in 1941.

A coinage was executed for the Government of Newfoundland amounting to 2,587,973 pieces.

A comparative statement of the value of coin issued, by denominations 1941 and 1942, is detailed below:—

Denomination	Coin Issued in	
	1941	1942
	\$ cts.	\$ cts.
SILVER COIN—	Nil	Nil
1 dollar.....	842,000.00	1,022,000.00
50 cents.....	1,718,000.00	1,708,000.00
25 cents.....	974,000.00	1,034,000.00
10 cents.....		
Total, Silver.....	3,534,000.00	3,764,000.00
NICKEL COIN—		
5 cents.....	454,000.00	361,575.50
TOMBAC COIN—		
5 cents.....	Nil	169,424.50
BRONZE COIN—		
1 cent.....	575,300.00	783,500.00
Total.....	4,563,300.00	5,078,500.00
	Number of Pieces	
Representing.....	84,906,000	108,186,000

Distribution of the coin issued to the various Agencies of the Bank of Canada was as follows:—

—	Silver				Nickel	Tombac	Bronze
	Dollar \$	50 cents \$	25 cents \$	10 cents \$	5 cents \$ c	5 cents \$ c	1 cent \$
Calgary.....		52,000	126,000	82,000	34,500.00	13,000.00	51,000
Charlottetown.....			12,000	8,000	3,000.00	1,000.00	5,000
Halifax.....		66,000	140,000	118,000	33,000.00	21,000.00	63,200
Montreal.....		134,000	446,000	254,000	129,500.00	39,500.00	195,800
Ottawa.....		14,000	84,000	46,000	19,575.50	2,924.50	17,800
Regina.....		60,000	142,000	88,000	23,000.00	9,000.00	41,000
St. John.....		26,000	124,000	42,000	11,000.00	9,500.00	30,200
Toronto.....		462,000	314,000	220,000	70,500.00	44,000.00	274,000
Vancouver.....		138,000	100,000	100,000	21,500.00	18,500.00	63,500
Winnipeg.....		70,000	220,000	76,000	16,000.00	11,000.00	42,000
		1,022,000	1,708,000	1,034,000	361,575.50	169,424.50	783,500

In addition to the above, there were executed for the Government of Newfoundland the following coinages:—

—	Value	Number of Pieces
	\$ c	
SILVER—		
10 cents.....	29,273.60	292,736
5 cents.....	14,917.40	298,348
BRONZE COIN—		
1 cent.....	19,968.89	1,996,889
	64,159.89	2,587,973

Worn and mutilated coin withdrawn from circulation:—

—	Withdrawn	Net Increase in Circulation
	\$ c	\$ c
Silver Coin.....	92,183.35	3,671,816.65
Nickel Coin (mutilated only).....	1,442.00	360,133.50
Tombac Coin (5 cents).....		169,424.50
Bronze Coin.....	9,935.94	773,564.06

### GOLD BULLION

Six thousand three hundred and sixty-two deposits of gold bullion weighing 5,576,488 ounces were received at the Mint from Canadian Mining Companies and sundry persons, and 283 deposits weighing 184,557 ounces received from the Dominion of Canada Assay Office, Vancouver, B.C. The total gross weight of gold deposited, including mutilated gold coin, was 5,761,044 ounces, contain-

ing by assay 4,611,982 ounces fine gold and 652,827 ounces fine silver. This shows a decrease as compared with the year 1941 of 756 deposits, gross weight 683,010 ounces, fine gold 480,626 ounces fine and fine silver 94,094 ounces fine.

The average price paid per ounce of fine gold contained in deposits was \$38.47156 and per ounce fine silver 38.8709 cents.

The net amount paid by the Royal Canadian Mint to depositors by cheque was \$169,947,315.48. In addition, 7,294.180 ounces of fine gold with a statutory value of \$150,784.48 were issued to depositors.

Postage collected for the Postmaster General on deposits shipped to the Mint postage collect amounted to \$36,840.33.

There were 1,460 rough gold deposits received at Vancouver and 6,362 received at Ottawa.

Details as to origin are shown in the following statement:—

Source	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
From Canadian Mines—			
Ontario.....	3,385,021.125	2,729,104.140	359,475.41
Quebec.....	1,479,841.175	1,204,733.578	154,156.67
British Columbia.....	430,910.730	321,977.106	74,885.01
Manitoba.....	156,807.225	125,630.223	12,689.24
Yukon.....	104,345.835	83,198.102	17,321.45
Nova Scotia.....	13,815.325	12,919.840	420.96
North West Territories.....	132,074.925	98,947.686	22,414.13
Alberta and Saskatchewan.....	30,564.250	19,438.116	7,793.96
Total from Mines.....	5,733,380.590	4,595,948.791	649,156.83
From Jewellery and Scrap.....	26,845.308	13,294.731	3,255.11
Mutilated Gold Coin.....	1.745	1.558	
GRAND TOTAL.....	5,760,227.643	4,609,245.080	652,411.94

A detail of the fine gold issued in the form of trade bars to the Bank of Canada and granulated, sweep, proof plate and medals to sundry persons is shown hereunder:—

	Ounces Fine
11,395 Trade Bars to Bank of Canada.....	4,543,250.214
Depositors.....	7,294.180
Sales to Manufacturers.....	53,404.343
Proof Plate.....	13.467
Medals.....	4.067
Sweep.....	7.925.956
	4,611,892.227

This total shows a decrease of 522,455.578 ounces fine as compared with the year 1941.

## OPERATIVE DEPARTMENT

Production in the "Operative Division" has been at a consistent high peak during the last three years; 1942 surpassed the 100,000,000 mark in number of pieces struck. The out-turn of good coins reached the record number of 128,367,415 in 1940, dropped slightly in 1941 to 84,027,661 and rose again in 1942 to 108,069,506. This output is several times the capacity of the plant when operating under normal conditions.

The one-cent coins are still greatly in demand; 76,113,708 pieces passed through the Examining Branch to the Mint Office to be issued to the people of Canada and Newfoundland. The new excise taxes of one and two cents which are applied to various commodities no doubt attributed to the increased circulation of one-cent pieces this year.

The following table shows the number of pieces of all denominations produced in 1941 and 1942:—

	1941	1942
	Pieces	Pieces
<b>DOMINION OF CANADA</b>		
<b>SILVER (800 fine)—</b>		
1 dollar.....		
50 cents.....	1,714,874	1,974,165
25 cents.....	6,654,672	6,935,871
10 cents.....	8,716,386	10,214,011
<b>NICKEL—</b>		
5 cents.....	8,681,785	6,847,544
<b>TOMBAC—</b>		
5 cents.....		3,396,234
<b>BRONZE—</b>		
1 cent.....	56,336,011	76,113,708
<b>Canadian Total.....</b>	<b>82,103,728</b>	<b>105,481,533</b>
<b>NEWFOUNDLAND</b>		
<b>SILVER (925 fine)—</b>		
10 cents.....	483,630	292,736
5 cents.....	612,641	298,348
<b>BRONZE—</b>		
1 cent.....	827,662	1,996,889
<b>Newfoundland Total.....</b>	<b>1,923,933</b>	<b>2,587,973</b>
<b>Total Canadian and Newfoundland.....</b>	<b>84,027,661</b>	<b>108,069,506</b>



The details of the production of coinage bars melted and rolled, blanks cut and good coins passed for issue are summarized below:—

	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Ozs.
FOR CANADA				
SILVER (800 fine)—				
50 cents.....	1,368,203·10	1,233,596·20	770,099·56	740,223·45
25 cents.....	2,398,063·50	2,146,979·80	1,434,132·14	1,301,728·19
10 cents.....	1,426,059·90	1,274,045·60	810,729·90	764,825·31
Total Silver.....	5,192,326·50	4,654,621·60	3,014,961·60	2,806,776·95
	Lbs.	Lbs.	Lbs.	Lbs.
NICKEL (pure)—				
5 cents.....				68,066·12
TOMBAC—				
5 cents.....	62,826·15	59,561·65	35,357·39	33,973·61
BRONZE—				
1 cent.....	814,789·54	824,949·19	557,665·44	543,043·20
	Ozs.	Ozs.	Ozs.	Ozs.
FOR NEWFOUNDLAND				
SILVER (925 fine)—				
10 cents.....	45,603·00	45,603·00	25,141·03	21,849·04
5 cents.....	17,015·90	17,015·90	12,135·07	11,129·33
Total Silver.....	62,618·90	62,618·90	37,276·10	32,978·37
	Lbs.	Lbs.	Lbs.	Lbs.
BRONZE—				
1 cent.....	22,685·15	22,685·15	15,302·50	14,241·05
	Short Tons 630·40	Short Tons 615·40	Short Tons 408·85	Short Tons 427·06

The continuation of the double shift in the Rolling, Cutting and Annealing Rooms and three shifts in the Press Room necessitated further increases in the number of men employed during 1942. At the close of the year the total number of officers, craftsmen and apprentices was 131 compared with 108 at the end of 1941.

Experiments were carried on during the early part of the year to evolve a suitable substitute for the nickel 5-cent coin after it was learned of the desire of the Metals Controller to conserve nickel for war purposes.

The 5-cent pure nickel coinage was added to the Canadian Currency in May, 1922, to replace the small silver 5-cent piece. After twenty years of life the 5-cent nickel coin is now giving way to copper and zinc for the duration of the war.

The composition of the new coin which has been approved by The Minister of Finance is 88 per cent copper and 12 per cent zinc, an alloy of metals called "Tombac" from Malay "Tombaga," a popular alloy for jewellery in the East Indies.



From the Mint point of view, this composition is sound economy, as the metallic content is such that if and when the need arises for redemption of these coins, when nickel again takes its place in coinage, they can be converted into bronze coin by the addition of tin and copper in their proper proportions.

A coin having twelve sides was chosen to overcome the prevalent objection raised by the similarity of the current 5-cent nickel with the 25-cent piece, and to prevent confusion with any other denomination. (See Plates I and II.)

Originating as a distinctly dodecagonal coin of twelve sides and twelve angles, it was discovered by numerous tests in the automatic coin-operated machines that more efficient results were obtained with a piece of slightly rounded corners rather than the sharper angles. Arrangements were therefore made to have the dies and collars adapted to the most suitable shape to strike coin which would actuate the pay telephone successfully and eject the correct number of coins from change-making machines.

The diameter, weight and thickness of the new coin are exactly the same as the present 5-cent nickel coin.

There were 3,396,234 tombac 5-cent coins produced in 1942.

The present regulations provide that the one-cent coin shall be composed of copper, tin and zinc. The definite proportions are not stated in the Currency Act, but the admixture of  $95\frac{1}{2}$  per cent copper, 3 per cent tin and  $1\frac{1}{2}$  per cent zinc produced the most satisfactory qualities required of a bronze coin; viz., sound castings, good colour and long wearing. In anticipation of an acute shortage of tin, and to assist in the war effort as much as possible by the conservation of our tin supplies, the tin content of the bronze was reduced to one-half of 1 per cent beginning the 1st April, 1942. No legislation was necessary, nor is there any appreciable difference in colour or texture. The stock of tin on hand, about 4,400 pounds, which was sufficient to supply alloy for 20,500,000 one-cent pieces at the old mixture, will now meet the alloy requirements of 120,000,000 coins.

At the request of the Newfoundland Government, orders were filled here for 10-cent, 5-cent and 1-cent Newfoundland coin, amounting to 2,587,973 pieces.

Another order of munition parts was placed with the Mint this year, on behalf of the British Admiralty. Despite the heavy coinage demands, extra time was worked to strike 110,000 pressure plates for the percussion fuse of 15-inch shells.

### **Melting House—**

The Melting House worked throughout the year on overtime to 11.00 p.m. Over 630 tons of silver, tombac and bronze bars were melted during the time under review. The need of coinage bars was so urgent from October to December that the Refinery gold deposit melting room was changed over to melt bars for coinage instead of rough gold bars.

There were also 24,733.00 ounces of worn coin cast into 1,000-ounce ingots; 11,627.00 pounds bronze worn and mutilated coin melted into 1-cent coinage bars; 6,426.00 ounces fine silver, 808.00 pounds copper and 2,957.00 pounds tin melted into slabs.

Extra work is entailed in the melting of tombac bars for the new 5-cent coin. Previously no melting or rolling of bars for 5-cent coin was necessary as nickel blanks were purchased by tender conditioned for striking. Probably 100,000 pounds of tombac bars will have to be melted yearly until the restoration of nickel again for coinage and other purposes.

Owing to the restrictions on fuel oil, the silver bullion and bronze metal will be melted by electricity in 1943. It is proposed to install two lift-coil type, high frequency induction furnaces which will melt 190 pounds of metal in 16 minutes, and save about 50,000 gallons of fuel oil a year. With this, the most modern equipment available, two furnaces will melt more than the four fuel oil burning units now in use, and at less cost.

### **Rolling Room—**

The additional work done in the Rolling Room, besides rolling and gauging over 600 tons of coinage bars, consisted of:—

- (1) 1,504 ounces fine silver were rolled for discs to be used in the Assay Office.
- (2) 52,731 lead discs were made from bars rolled for the Assay Office.

The Gauging Mill was equipped with cantilever spring balanced spindle carriers. The carrier arms which support the coupling boxes and spindles connecting the rolls and motor-driven gears, result in a quieter and smoother running mill. The other two rolling mills will be equipped with this apparatus as soon as possible.

### **Annealing Room—**

To obtain the new-gold finish on the 5-cent tombac coins, the Annealing Branch had to be enlarged. A special blanching and dipping plant was designed and installed in the small vacant room adjacent to the Annealing Room.

After the annealed blanks have been removed from the cold water plunging tank, they are placed in colanders and shoved through a hatchway into the dipping room. A wooden tank 8 feet long, 3 feet wide and 14 inches deep is used to hold the swilling water and the jars and vats containing the various acids.

The blanching is done manually in aluminum colanders, and, after a thorough rinse in cold running water, the blanks are ready for drying in the centrifugal dryer.

### **Coining Press Room—**

Owing to the difficulty of purchasing consistently high-grade die steel, the saving of dies in the Press Room was given the greatest consideration. An all-out effort was made to have coin blanks annealed sufficiently soft, bent blanks picked out in roll-sorting to prevent clashes, and each operator trained to give every care to the conservation of coinage dies.

About 50 per cent of the one-cent and five-cent dies were chromium-plated. The results proved that the wearing qualities of these dies would be greatly increased by chromium-plating if cracking in the steel did not occur too soon after being set up in the press. As many as 700,000 pieces were struck from a chromium-plated die.

The above precautions, coupled with the engraver's efforts to provide the best work possible, have effected the gratifying increase in the average number of pieces produced by each pair of dies from 78,493 in 1941 to 107,579 in 1942.

Statement of the number of dies used, by denominations, and the number of pieces produced per pair of dies, is given below for 1941 and 1942:—

Denomination	1941			1942		
	Number of Good Pieces Coined	Number of Dies Used		Number of Good Pieces Coined	Number of Dies Used	
		Obv.	Rev.		Obv.	Rev.
50 cents.	1,714,874	59	33	1,974,165	90	47
25 cents.	6,654,672	184	238	6,935,871	236	240
10 cents.	8,716,386	167	379	10,214,011	258	245
5 cents.	8,681,785	93	82	10,243,778	93	90
1 cent.	56,336,011	483	374	76,113,708	385	277
	82,103,728	986	1,106	105,481,533	1,062	899
		2,092			1,961	
			78,493			105,579

### Die and Medal Branch—

The Die Department prepared 2,058 matrices, punches and dies for Canadian coinage and 48 dies for Newfoundland coinage in 1942, compared with 2,198 dies in 1941, when a less number of pieces were coined.

Twenty-nine R.C.M.P. Long Service and Good Conduct Medals, mounted with clasp, were struck and issued to the Commissioner of the Royal Canadian Mounted Police. The name of the recipient was engraved on the edge of each medal.

Two gold medals were struck for the Royal Society of Canada, the Flavelle Medal engraved "J. H. Craigie, 1942" and the Tyrrell Medal engraved "D. C. Harvey, 1942."

Two gold medals of 10 carat fineness were struck for the Engineering Institute of Canada, the Leonard and Gzowski Medals.

Four Julian C. Smith Medals in Tombac metal were struck and engraved on behalf of the Engineering Institute of Canada.

The Crest of the Royal Society was remodelled by the Mint Engraver, and a more accurate design engraved on the steel direct to strike one side of the 2 1/16-inch medals for the Flavelle and Willet G. Miller Medals.

A new die was engraved for the Willet G. Miller Medal 2 1/16-inch diameter. This also was cut manually in the steel from a black and white drawing of the late Dr. Miller, eminent Canadian Geologist. It is a full-face portrait head surrounded by the inscription: THE WILLET G. MILLER MEDAL, FOUNDED, 1941.

This is a Royal Society award to be given to persons resident in North America who have completed and published a paper of outstanding research in Geology, Palaeontology, Mineralogy or Allied Sciences. The medal will be struck in 18 carat gold.

The reverse die for the tombac 5-cent coin to be issued as a "Victory" coin in 1943 was designed in the Mint, and was cut direct in steel from sketches approved by the Honourable the Minister of Finance.



## Mechanical and Electrical Branch—

To keep up with the continued heavy demand for coins, medals and munition parts meant that the minimum of time could be lost through breakdowns in the mechanical or electrical equipment. Not only was production maintained at peak capacity through speedy repairs and renewals being effected when and where necessary, but many new improvements were made to increase the efficiency of the plant, by the acquisition of spare equipment which can be used to replace worn or broken parts in a short time, and by lessening hazards around the working parts of the machinery where employees might become injured. Frequent overtime to midnight and Sundays, and continuous double shifts had to be resorted to in this department to accomplish all the work that was required.

Ten sets of new armature coils and commutators were specially made up to be used as replacements in our three and five horsepower motors. These motors have been in operation for 35 years, and although obsolete from the manufacturer's point of view, they can now be kept in perfect running order indefinitely by the expenditure of a few dollars rather than an outlay of several hundreds of dollars for new motors.

Four mould carriages and moulds for melting 25-cent and 1-cent coinage bars were cast and machined; punches and dies for munition parts, collars for coining presses and innumerable other items for all branches of the Mint were made as occasions arose.

To speed up the cutting of the gilding rod into accurate lengths for pressure plates for the 15-inch shells, the milling machine was adapted to cut seven pieces at one time instead of one cut with the metal band-saw method.

An arrangement to support the heavy steel spindles and couplings which connect the motor-driven gears to the large rolls on each rolling mill was designed by our own staff. A very heavy cast iron pillar with two carrier arms on each extending horizontally support the centre of the spindle. As the spindles revolve, they are held in a level horizontal plane which results in less friction on the wearing parts and a much smoother and quieter rolling mill.

Owing to the restrictions covering the use of fuel oil for heating the three 75 horse-power boilers supplying steam for heat and various operations in connection with coining and refining, were changed from oil fuel to coal burning. Blowers, grates and all the necessary labour to accomplish this were supplied by the Public Works Department.

The boilers had been thoroughly cleaned and overhauled during the summer months and passed by the Inspector.

Several thousand pounds of scrap iron and steel were salvaged. Instead of selling this material through the Salvage Division, it was considered more economical to use this scrap in the gold and silver chloride operations, rather than dispose of it for a small sum and have to pay a much higher rate for new iron plates to do the same work.

Similar efforts to cut down wastage and institute the most economical methods in the Operative Department have resulted in savings of over \$1,000 in lubricating oil and wiping rags alone. Sterilized wipers are necessary to clean the machinery of surplus oil at the end of the day. After the wipers became saturated with dirt and oil they were placed in fireproof receptacles and thrown away. All wipers are now washed free of oil, dried and used again and again until worn out. It is not expected that the purchase of any wipers will be found necessary again in 1943.

Over 5,000 small bags were manufactured from surplus material to be used for shipping silver and bronze coins.

## Miscellaneous—

Motion pictures and a series of photographs of the operations in connection with minting the new 5-cent coins were taken by the War Information Board.

# ASSAY OFFICE

The Chief Chemist and Assayer reports as follows:—

The number of assays made from 1st January to 31st December, 1942, was as follows:—

## GOLD—

Refinages.....	6,054	
Rough Gold.....	28,417	
Proofs.....	2,906	
Parting Proofs.....	825	
Parting Buttons.....	11,645	
Miscellaneous.....	1,254	
		51,101

## SILVER—

Canadian Coinage Standard Bars.....	5,765	
Pyx.....	1,579	
Newfoundland Coinage Bars.....	112	
Pyx.....	26	
Proofs.....	1,229	
Fine Silver.....	1,055	
Miscellaneous.....	532	
		10,298

## MISCELLANEOUS—

Mint Sweeps, Residues, etc.....	244	
Commercial.....	4	
Assays for Marking Act Inspector.....	37	
Nickel and other metal determinations.....	93	
		378

Total Number of Assays..... 61,777

The mean finenesses of Canadian Silver Coinage struck during 1942 were as follows:—

Denomination	Standard Fineness	Mean Fineness
Dollar.....	800.0	Nil
50 cents.....	800.0	799.18
25 cents.....	800.0	799.45
10 cents.....	800.0	799.68

Coinage for the Government of Newfoundland was undertaken by the Mint during the year under review, and the mean finenesses of the Silver Coinage struck were as follows:—

Denomination	Standard Fineness	Mean Fineness
10 cents.....	925.0	924.85
5 cents.....	925.0	924.93

Representative samples taken from 2,275,765 nickel five-cent blanks (22,757.65 pounds) supplied to the Mint were examined for composition and hardness and the blanks were found to comply in all respects with the specifications.

Two fine gold working trial plates were made and fixed against the special fine gold plate and one fine silver working trial plate was made and fixed against the silver trial plate in use.



The following amounts of fine gold and silver trial plates sold during the year were 13.47 and 40 ounces, respectively.

A quantity of gold-plated pen nibs and gold rings which on examination were found not to conform to the Precious Metals Marking Act were destroyed and the gold recovered for the Department of Trade and Commerce.

Several suspected counterfeit coins were examined for the Finance Department and the Royal Canadian Mounted Police and two fifty-cent pieces from the latter were found to be counterfeits.

A case of illicit possession of gold bullion was reported to the Mint by the Royal Canadian Mounted Police. This bullion, which had been seized by the police, was examined, assayed, etc., and an officer from this department attended the trial in Montreal to give evidence.

The process of annealing silver coinage blanks in the Operative Department was changed from the rotary oil furnace to annealing the blanks in perforated iron pots in an electric furnace. Investigations were undertaken over a period of several weeks to determine the gain in fineness in annealing and blanching blanks of the different denominations of silver coinage by the new process, and, from the information so obtained, the control of the composition of ingot and scissel pots can be more strictly governed.

## REFINERY

During the year the Refinery received 6,646 deposits (6,363 from mines and miscellaneous depositors and 283 from the Vancouver Assay Office) containing 4,611,981 ounces of fine gold and 652,827 ounces of fine silver. One rejected is included in the above number of deposits.

Eleven thousand four hundred and seventeen fine gold trade bars with a gross weight of 4,565,497 ounces containing 4,551,262 ounces of fine gold at an average assay of 996.88; granulated gold with a gross weight of 61,855 ounces containing 61,845 ounces of fine gold at an average assay of 999.84 and silver bars with a gross weight of 670,186 ounces containing 669,614 ounces of fine silver with an average assay of 999.1 were delivered to the Mint Office.

Granulated gold weighing 203.718 ounces fine, worn coin weighing 1.558 ounces and medal scrap weighing .274 ounces were received from the Mint Office.

Thirteen decimal four six seven ounces of fine gold and 40 ounces of fine silver were delivered to the Assay Office for the manufacture of gold and silver trial plates.

One hundred and eighty-six thousand and twenty-two ounces of the total amount of deposits received were remelted and 2,763 ounces toughened before uniform assays could be obtained.

Sweep amounting to 59.929 tons was recovered, ground, barrelled and sampled, and, of this amount, 55.068 tons were assayed and contained 11,660 ounces of fine gold and 59,813 ounces of fine silver. Sweep containing 7,913 ounces of fine gold and 60,138 ounces of fine silver was sold during the year.

Six hundred and seventy thousand, one hundred and eighty-six ounces of fine silver bars were produced from the treatment of 1,255,694 ounces of base and silver chlorides.

Owing to extreme pressure of work in the Operative Department Melting House, the Refinery undertook to melt and produce for this Department silver and tombac coinage bars, 384,487.40 ounces of silver and 62,825 pounds of tombac were melted during the period September 22nd to December 29th, 1942.

## DOMINION OF CANADA ASSAY OFFICE, VANCOUVER, B.C.

The amount disbursed through this office in 1942 for the purchase of gold bullion was \$5,628,080.26, as against \$6,216,906.58 for the calendar year 1941, a decrease of \$588,826.32.

Particulars as to source, weights, etc., are as under:—

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territory .....	429	104,334.06	83,188.678	17,319.72
British Columbia .....	762	74,343.73	62,018.553	8,389.65
Alberta and Saskatchewan .....	13	54.75	42.484	3.88
North West Territories .....	1	4.25	3.538	.47
Jewellery and Dental Scrap .....	255	5,001.39	2,264.664	708.82
	1,460	183,738.18	147,517.917	26,422.54

The net decrease in the number of deposits during the year just ended, as compared with the previous year, is 518 and the total fine gold content in deposits was smaller by 15,496.141 ounces. Decreases are recorded from all sources with the exception of the Yukon Territory, the latter showing an increase over 1941 of 42 deposits and of fine gold of 11,848.337 ounces.

It is of course difficult under present conditions to forecast production, but present indications are that we may expect gold deposits from the Yukon during 1943 to be within approximately 20 per cent of the figures for last season.

As regards British Columbia mined gold, some circles are of the opinion that, with labour conditions becoming more stabilized, there should not be a marked decline in the output during the year 1943.

### GENERAL

The annual stocktaking and inspection of the store of bullion and coin, as required by the Act establishing the Royal Canadian Mint, was conducted by the officers of the Auditor General's Department in March, the results of which will be found in the Auditor General's Report.

The Assay Commissioners, Dr. L. G. Turnbull of the Division of Physics and Electrical Engineering, National Research Council, Dr. C. W. Davis of the Division of Chemistry, National Research Council, and Mr. R. J. Traill of the Metallic Minerals Division of the Bureau of Mines, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1941 have been minted in accordance with the provisions of the said Act, were sworn in by His Honour, Judge E. J. Daly, and in the presence of Dr. A. K. Eaton, Taxation Investigator as representative of the Department of Finance, on the 5th day of May, 1942.

The findings of these gentlemen indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act.

A saving has been effected in boxes used for the purpose of shipping coin to the various Agencies of the Bank of Canada. Boxes were formerly not required to be returned to the Mint but owing to the difficulty of procuring boxes when needed, the Bank of Canada has instructed its Agents to return them to the Mint when emptied. Upon receipt at the Mint the boxes are re-conditioned and put back into use. The number of boxes requiring repair is almost negligible. Transportation charges for the return of the boxes is from a minimum of 6 cents to a maximum of 25 cents depending upon the distance transported.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada since 1858.

I am, Sir,

Your obedient Servant,

H. E. EWART,  
*Master, Royal Canadian Mint.*

## APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1908, to its disestablishment on the 30th November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1942.

Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	Value Coin and Bullion
	Ounces	\$	\$	Ounces Fine	\$
1908 to 30th Nov., 1931.....	34,321,068.750	591,419,217.02	7,923,878.73	28,141,076.806	589,651,570.24
1931—1st to 31st Dec.....	299,973.100	5,100,968.08	.....	189,512.838	3,917,577.86
1932.....	3,520,276.570	58,491,549.39	.....	2,873,221.290	59,394,754.05
1933.....	3,331,905.174	53,819,014.01	.....	2,589,648.765	53,532,789.33
1934.....	3,888,848.540	62,201,080.02	.....	3,038,018.961	62,801,423.68
1935.....	3,996,131.927	65,297,776.55	.....	3,177,497.360	65,684,697.95
1936.....	4,552,289.960	74,487,536.98	.....	3,625,548.842	74,946,744.64
1937.....	4,959,970.893	81,311,693.73	.....	3,937,910.698	81,403,837.11
1938.....	5,601,260.642	90,920,063.13	.....	4,308,067.369	89,055,654.13
1939.....	6,181,336.290	100,656,105.55	.....	4,834,214.285	99,932,075.82
1940.....	6,295,218.554	103,169,970.38	30.00	5,026,792.728	103,913,055.43
1941.....	6,444,056.215	105,273,560.67	.....	5,134,347.805	106,136,385.78
1942.....	5,761,045.973	95,338,135.90	.....	4,611,892.227	95,336,270.79
	89,153,382.588	1,487,486,671.41	7,923,908.73	71,487,749.974	1,485,706,836.81



## APPENDIX B

		SILVER						NICKEL	TOMBAC	BRONZE		
		Dollar \$	50c. \$	25c. \$	20c. \$	10c. \$	5c. \$	Total Silver \$	5c. \$	5c. \$	1c. \$	1c. \$
1858 to 1907	New Brunswick, 1861, 2 and 4				60,000	25,000	10,000	95,000			20,000	1,114
	Nova Scotia, 1861, 2 and 4										26,000	4,000
	Prince Edward Is- land, 1871										10,000	
	Rest of Canada, 1858-1907		1,249,018	5,094,978	150,000	3,040,000	2,926,000	12,459,996			803,315	
	Totals		1,249,018	5,094,978	210,000	3,065,000	2,936,000	12,554,996			859,315	5,114
GOLD												
	Sover- eigns £	\$10 \$	\$5 \$									
1908 to	627,834	3,480,360	1,388,060									
1927	6,000	7,686,925	4,980,844	3,084,802	18,291,571	814,000	00	1,224,206				
1928	84,000	535,000	326,000		867,000	250,000	00	92,100				
1929	672,000	325,000	325,000		1,081,000	267,000	00	123,300				
1930	18,000	164,000	144,000		326,000	164,500	00	13,400				
1931	34,000	212,000	229,400		475,400	281,000	00	51,400				
1932	18,400	134,000	58,000		287,000	165,000	00	213,200				
1933		97,000	48,000		155,000	125,000	00	120,800				
1934		105,100	48,000		172,300	193,000	00	69,900				
1935		134,400	38,500		601,020	194,000	00	75,100				
1936	428,120	242,000	241,800		809,200	202,600	00	87,200				
1937	306,100	711,900	273,400		1,322,200	251,100	00	105,400				
1938	240,900	782,000	408,000		1,376,000	153,500	00	184,300				
1939	90,000	867,400	561,900		2,794,032	321,000	00	214,600				
1940	*1,220,732	968,000	2,343,000		4,845,000	660,500	00	822,800				
1941	842,000	1,718,000	974,000		3,534,000	454,000	00	575,300				
1942	20	1,022,000	1,034,000		3,764,000	361,575	50	169,424	50			
1943	2,785,852	54,918	23,207	703	210,000	14,376,444	6,020,802	53,255,719	4,857,775	50	5,615,821	5,114
1944	2,794,249	380,138	870		210,000	14,376,444	6,020,802	53,255,719	4,857,775	50	5,615,821	5,114
1945	2,794,249	380,138	870		210,000	14,376,444	6,020,802	53,255,719	4,857,775	50	5,615,821	5,114
1946	2,794,249	380,138	870		210,000	14,376,444	6,020,802	53,255,719	4,857,775	50	5,615,821	5,114
1947	2,794,249	380,138	870		210,000	14,376,444	6,020,802	53,255,719	4,857,775	50	5,615,821	5,114
1948	2,794,249	380,138	870		210,000	14,376,444	6,020,802	53,255,719	4,857,775	50	5,615,821	5,114
1949	2,794,249	380,138	870		210,000	14,376,444	6,020,802	53,255,719	4,857,775	50	5,615,821	5,114
1950	2,794,249	380,138	870		210,000	14,376,444	6,020,802	53,255,719	4,857,775	50	5,615,821	5,114

\* Of this amount \$15,000 returned in 1940.





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(DEPARTMENT OF FINANCE)

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# ROYAL CANADIAN MINT

Report  
For the Calendar Year  
1943

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OTTAWA  
EDMOND CLOUTIER  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1944









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DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year  
1943

Published by Authority of the HON. J. L. ILSLEY, K.C., M.P.,  
Minister of Finance

OTTAWA  
EDMOND CLOUTIER  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1944



## ROYAL CANADIAN MINT

OTTAWA, April 26, 1944.

The Honourable  
The Minister of Finance,  
Ottawa, Ontario.

SIR:

I have the honour to submit for your consideration the report of the operations of the Royal Canadian Mint for the calendar year 1943.

### COINAGE

A heavy demand for coins of all denominations, with the exception of the Dollar, continued throughout the twelve months of the year 1943, and, in order to meet the requirements of the Bank of Canada for coin, it was necessary for the Coining Division to operate 24 hours daily, Sundays included, for the major part of the year.

Although the issues of coin exceeded 150,000,000 pieces, the Coining Division was able to meet the requirements without recourse to the purchase of blanks, as had been found necessary in previous years.

The total number of pieces of good coin produced in 1943 was 151,684,612 as compared with 105,481,533 produced during 1942.

A coinage was executed for the Government of Newfoundland amounting to 1,696,104 pieces.

A comparative statement of the value of coin issued, by denominations, 1942 and 1943, is shown in the following table:—

Denomination	Coin Issued in	
	1942	1943
	\$ cts.	\$ cts.
SILVER COIN—		
1 dollar.....	Nil	Nil
50 cents.....	1,022,000.00	1,564,000.00
25 cents.....	1,708,000.00	3,402,000.00
10 cents.....	1,034,000.00	2,078,000.00
Total Silver.....	3,764,000.00	7,044,000.00
NICKEL COIN—		
5 cents.....	361,575.50	
TOMBAC COIN—		
5 cents.....	169,424.50	1,238,000.00
BRONZE COIN—		
1 cent.....	783,500.00	881,300.00
Total.....	5,078,500.00	9,163,300.00
	Number of Pieces	
Representing.....	108,186,000	150,406,000

Distribution of the coin issued to the various Agencies of the Bank of Canada was as follows:—

—	Silver				Tombac	Bronze
	Dollars \$	50 cents \$	25 cents \$	10 cents \$	5 cents \$	1 cent \$
Calgary.....		146,000	348,000	214,000	126,500	74,500
Charlottetown.....			20,000	12,000	8,000	4,800
Halifax.....		76,000	200,000	156,000	102,500	61,700
Montreal.....		146,000	686,000	464,000	270,000	245,200
Ottawa.....		22,000	110,000	48,000	26,500	23,200
Regina.....		132,000	348,000	190,000	117,500	68,000
St. John.....		50,000	164,000	74,000	45,500	29,800
Toronto.....		596,000	896,000	522,000	290,500	235,000
Vancouver.....		248,000	230,000	230,000	136,000	82,600
Winnipeg.....		148,000	400,000	168,000	115,000	56,500
Totals.....		1,564,000	3,402,000	2,078,000	1,238,000	881,300

In addition to the above, there were executed for the Government of Newfoundland the following coinages:—

—	Value	Number of Pieces
	\$ c.	
SILVER—		
10 cents.....	10,470.60	104,706
5 cents.....	17,583.30	351,666
BRONZE—		
1 cent.....	12,397.32	1,239,732
	40,451.22	1,696,104

Worn and mutilated coin withdrawn from circulation:—

—	Withdrawn	Net Increase in Circulation
	\$ c.	\$ c.
Silver Coin.....	45,991.60	6,998,008.40
Nickel Coin (mutilated only).....	1,562.70	
Tombac Coin (5 cents).....		1,238,000.00
Bronze Coin.....	2,804.40	878,495.60

### GOLD BULLION

Four thousand eight hundred and twenty-five deposits of gold bullion weighing 4,371,213 ounces were received at the Mint from Canadian Mining Companies and sundry persons, and 165 deposits weighing 85,225 ounces received from the Dominion of Canada Assay Office, Vancouver, B.C. The total gross weight of gold deposited, including mutilated gold coin, was 4,456,438 ounces,

containing by assay 3,616,959 ounces fine gold and 474,386 ounces fine silver. This shows a decrease as compared with the year 1942 of 1,655 deposits, gross weight 1,304,606 ounces, fine gold 995,023 ounces fine and fine silver 178,441 ounces fine.

The net amount paid by the Royal Canadian Mint to depositors by cheque was \$135,169,933.85. In addition, fine gold amounting to 5,835·849 ounces with a statutory value of \$120,638.10 was also issued in payment of gold deposits.

Postage collected for the Postmaster General on deposits shipped to the Mint postage collect amounted to \$21,965.02.

There were 722 rough gold deposits received at Vancouver and 4,825 deposits at Ottawa. Details relating to the origin of these deposits are shown in the following statement:—

Source	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
From Canadian Mines—			
Ontario.....	2,613,308·050	2,110,420·496	275,272·27
Quebec.....	1,304,195·150	1,087,610·755	127,697·94
British Columbia.....	210,490·910	162,102·034	33,984·39
Manitoba.....	156,422·550	129,975·593	10,243·70
Yukon.....	52,709·610	41,156·866	8,810·11
Nova Scotia.....	4,448·625	4,130·962	144·70
North West Territories.....	86,065·025	64,586·135	14,363·50
Alberta and Saskatchewan.....	37·210	26·229	2·77
Total from Mines.....	4,427,677·130	3,600,009·070	470,519·38
From Jewellery and Scrap.....	22,561·795	10,534·869	3,161·89
Foreign.....	1,526·300	1,470·261	28·96
Mutilated Gold Coin.....	0·264	0·237	.....
GRAND TOTAL.....	4,451,765·489	3,612,014·437	473,710·23

A detail of the fine gold issued in the form of trade bars to the Bank of Canada and granulated, sweep, proof plate and medals to sundry persons is shown hereunder:—

	Ounces Fine
8,925 Trade Bars to Bank of Canada.....	3,559,549·683
Depositors.....	5,835·849
Sales to Manufacturers.....	62,684·078
Proof Plate.....	0·500
Medals.....	7·838
Sweep.....	17,662·016
	3,645,739·964

This total shows a decrease of 966,152·263 ounces fine as compared with the year 1942.

## OPERATIVE DEPARTMENT

New and unprecedented records for coinage production have been registered yearly since the beginning of the present war in 1939, but the output in 1943 surpassed any other year in the history of the Ottawa Mint with the high mark of 153,380,716 pieces being passed for issue, approximately 45,000,000 more pieces than in 1942.



The entire 1943 coinage was also completed under conditions less favourable than usual, for, whereas in other years from 10,000,000 to 60,000,000 blanks were purchased from contractors, conditioned for striking on the Coining Presses, this year the whole of the work was carried out without such assistance. The total tonnage of coinage bars cast for rolling and cutting into blanks to be struck into coins was over 1,050 tons, an increase of 400 tons over any other year. It may be interesting to record here that coinage production and issues of coins for use by the people of Canada amounted to more than 500,000,000 pieces in the past five years, of which 329,000,000 were of the one-cent denomination.

The coinage of silver during 1943 has been the most considerable in Mint operations reaching upwards of 37,812,387 pieces, having a total value of \$7,059,008.

The new five-cent coins of tombac metal struck to replace the pure nickel coins during the restrictions on nickel for war purposes only, caused much strain upon the plant and equipment of the Operative Department. The melting of the copper and zinc into five-cent coinage bars, and rolling them to gauge, made necessary the handling of over 200 tons of extra work. This effort in a capacity already taxed to the utmost could have been applied to other denominations if the blanks, or gauged fillets from which the blanks could be rapidly cut, had been available from an outside source, ready for striking on the Coining Presses.

Nearly 25,000,000 tombac coins were passed for issue in 1943, which constitutes a record for the five-cent denomination.

A coinage for Newfoundland was also executed during the year, consisting of ten-cent, five-cent and one-cent coins.

Despite the heavy coinage demands, work on munition parts was engaged in to fill urgent orders for 41,300 Pressure Plates for the percussion fuse of fifteen-inch shells required by the British Admiralty.

In order to maintain an average output of at least 3,000,000 good coins each week the Coining Presses were called upon to operate continuously twenty-four hours daily, seven days a week. The other departments of the Coining Division worked on a two and three shift schedule to keep the Coining Presses supplied with sufficient blanks for striking.

The first two months of the year are usually comparatively quiet, and during that time an opportunity is provided to accumulate a stock of blanks and coin as a reserve ready to issue when the demands for coin are more urgent. It was quite apparent early in the year that immediate coinage demands would be difficult to cope with, all coins leaving the Mint as soon as they could be counted. No opportunity was therefore presented to get ahead of current orders, and build a reserve stock.

At the close of the year the total number of officers, craftsmen and apprentices employed in the Operative Department was 176, compared with 131 at the end of 1942. Of this number only 40 are on the permanent staff. During 1943 there were 120 changes made in the temporary staff, caused by dismissals of workmen unsuitable for Mint work; by resignations of men who felt they could not maintain the physical standards required; through the application of Order-in-Council, P.C. 4759, on the attainment of 18 years of age; and those who left to join the Armed Forces. Owing to the scarcity of skilled workmen there were many difficulties to be overcome, which imposed a severe strain on the supervising staff and more responsible craftsmen, whose services are now almost indispensable.

The following table sets out the coinage by denominations produced in 1942 and 1943:—

	1942	1943
	Pieces	Pieces
DOMINION OF CANADA		
SILVER (800 fine)—		
1 dollar.....		
50 cents.....	1,974,165	3,109,583
25 cents.....	6,935,871	13,559,575
10 cents.....	10,214,011	21,143,229
NICKEL—		
5 cents.....	6,847,544	
TOMBAC—		
5 cents.....	3,396,234	24,760,256
BRONZE—		
1 cent.....	76,113,708	89,111,969
Canadian Total.....	105,481,533	151,684,612
NEWFOUNDLAND		
SILVER (925 fine)—		
10 cents.....	292,736	104,706
5 cents.....	298,348	351,666
BRONZE—		
1 cent.....	1,996,889	1,239,732
Newfoundland Total.....	2,587,973	1,696,104
Total Canadian and Newfoundland.....	108,069,506	153,380,716

The details of bullion and metal melted and cast into coinage bars, bars rolled, blanks cut and good coins passed for issue are summarized below:—

	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Ozs.
FOR CANADA				
SILVER (800 fine)—				
50 cents.....	2,204,528.15	2,046,444.35	1,286,579.55	1,164,559.90
25 cents.....	4,145,408.70	4,000,922.09	2,731,735.85	2,545,287.04
10 cents.....	3,030,276.05	2,695,560.10	1,753,845.32	1,579,911.29
Total Silver.....	9,380,212.90	8,742,926.54	5,772,160.72	5,289,758.23
	Lbs.	Lbs.	Lbs.	Lbs.
BRONZE—				
1 cent.....	1,019,382.00	992,003.18	670,664.90	636,104.00
TOMBAC—				
5 cents.....	421,809.71	425,084.31	254,617.11	246,840.00

	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Ozs.
FOR NEWFOUNDLAND				
SILVER (925 fine)—				
10 cents.....	58,317.20	12,578.50	8,045.96	7,752.35
5 cents.....		37,676.50	20,964.20	13,160.04
Total Silver.....	58,317.20	50,255.00	29,010.16	20,912.39
	Lbs.	Lbs.	Lbs.	Lbs.
BRONZE—				
1 cent.....	14,636.00	14,197.57	9,166.82	8,842.68
	Short Tons	Short Tons	Short Tons	Short Tons
	1,051.90	1,017.60	666.30	628.10

### Melting House—

The pressure of work during the year has been especially felt in the Melting Branch, owing to the necessity of maintaining a large supply of coinage bars from two sources some distance from each other, which entailed severe labour and hardship upon the workmen conveying many tons of bullion and metal between the buildings.

The melting furnace equipment in the Operative Department was again augmented by the use of three furnaces formerly used for melting rough gold bullion in the Refinery. The exceptional amount of coinage bars necessary to keep the Rolling Room occupied on two long or three normal shifts daily required that every furnace which could be spared had to be utilized for this purpose. The record total of 1,051 tons of bullion and metal was cast into coinage bars in 1943. A comparison of the annual tonnage over the past five years is shown herewith to convey some idea of the pressure of work out turned in the Melting House with very little change in equipment, 1942—630 tons, 1941—411 tons, 1940—505 tons, 1939—274 tons, 1938—194 tons.

It was hoped that the new high frequency induction furnaces would have been in operation during the year but owing to "force majeure" the complete installation and operation will be delayed until the new year.

Besides the regular work, there were also 51,475 ounces of silver worn coins cast into 1,000 ounce ingots to determine the assay; 2,554 pounds of bronze worn and mutilated coins melted and 12,678 ounces of fine silver were granulated.

### Rolling Room—

The additional work done in the Rolling Room besides rolling 1,017 tons of bars and fillets to the gauge of each coin denomination, consisted of:—

- (1) 1,024 ounces of fine silver rolled for 2½-grain, 10-grain and 26-grain discs to be used in the Assay Office.
- (2) 36,842 lead discs were made from bars rolled for the Assay Office.

The remaining two rolling mills were equipped with cantilever spring balanced spindle carriers. This mechanism, now installed on all four rolling mills, reduces the friction and noise, and results in a greater all round efficiency.

### Annealing Room—

To increase the output of annealed blanks the sawdust method of drying the bronze blanks, before going to the Coining Presses, was discontinued. The sawdust acts not only as a drier after the blanching, pickling and washing of the blanks, but the scouring action of the sawdust prevents too rapid tarnishing and discoloration. There is, however, a fine dust that adheres to the blanks which is not conducive to the production of well struck coins. Moreover, the process is too slow when peak output is demanded.

Experiments in drying by hot air in the centrifugal drying machine were carried out successfully after it was learned of the great importance of the absolute removal of acidity. Any trace of acid left on the blanks after the pickling operation and rinsing in cold water, caused immediate discoloration when they came in contact with warm air. To assure freedom from acid, a bath of strongly basic solutions, alkaline reaction, was used to neutralize any acid which had not been removed by washing in water. Excellent results have been achieved, good colour, no dust and increased production.

A new centrifugal drying machine has been ordered to take care of the extra work of drying the bronze blanks, as well as the silver and tombac blanks, by this method. The present machine has been in operation over thirty years.

### Coining Press Room—

Statement of the number of dies used, by denomination, and the number of good pieces struck per pair of dies is given below for 1942 and 1943:—

Denomi- nation	1942				1943			
	Number of Good Pieces Coined	Number of Dies Used		Number of Pieces per Pair of Dies	Number of Good Pieces Coined	Number of Dies Used		Number of Pieces per Pair of Dies
		Obv.	Rev.			Obv.	Rev.	
50 cents..	1,974,165	90	47	28,820	3,109,583	168	118	21,745
25 cents..	6,935,871	236	240	29,142	13,559,575	456	491	28,426
10 cents..	10,214,011	258	245	40,612	21,143,229	709	535	33,992
5 cents..	10,243,778	93	90	111,954	24,760,256	352	323	73,364
1 cent...	76,113,708	385	277	229,950	89,111,969	421	331	237,000
	105,481,533	1,062	899	105,579	151,684,612	2,106	1,798	77,707
		1,961				3,904		

Every effort and precaution was used to overcome breakages and increase the life of coinage dies, but the rapid pace necessary to strike 3,000,000 coins per week, coupled with inexperienced operators on the coining presses, caused a considerable reduction in the average number of pieces struck by each pair of dies. All denominations except the one-cent show an increase in the number of dies used.

### Die and Medal Branch—

The Die Department prepared 3,912 matrices, punches and dies for Canadian coinages, and 102 dies for Newfoundland, compared with a total of 2,106 dies in 1942.



In keeping with the war measure which necessitated the change in the metallic content of the five-cent coins temporarily from nickel to tombac, a new design for the reverse of the five-cent piece having a "Victory" motif was evolved by the Mint staff late in 1942. The Honourable the Minister of Finance selected the most appropriate design from sketches submitted and the master die was cut in the steel direct by the Mint Engraver in time for issue on the 1st January, 1943. All designs and master dies for Canadian coins had previously been prepared in the Royal Mint, London, and this is the first occasion that the original matrix and punch for a new coin has been engraved at the Ottawa Mint. The old art of engraving on the steel, or matrix, direct, is gradually disappearing, being superseded by the reducing or pantograph machine, which takes the sculptor's large model and reduces every line and plane to the size required. Modern as this method may be, it has been our experience that unless the artist, sculptor and modeller keep in the closest touch and each understand the technique of the small steel punch produced by the reducing machine, good results artistically may be obtained, but technically it may be most difficult to produce a satisfactory coin or medal on the coining press. To have the post of Engraver filled by one who is an artist, sculptor and modeller combined with an expert knowledge of the art of direct engraving on the steel, so that the finished coin or medal will be minted successfully, not only from an artistic but technical and mechanical point of view, is indeed fortunate.



PLATE 1

The new design of the five-cent has for the reverse impression the character "V," which indicates the denomination, the Roman numeral for "five," and also represents the symbol "V" for Victory made so popular during the present crisis by Mr. Churchill. To this is conjoined the Torch, emblematic of Sacrifice, the whole designed to convey the idea that victory cometh by Sacrifice and willingness to work. The words "CANADA" above and "CENTS" below, the year of minting and two small maple leaves complete the reverse design. There is no change made in the obverse. The coin was struck with twelve sides, as in 1942, to overcome confusion with coins of other denominations. A Proclamation (see Appendix "C"), dated 17th November, 1942, was published in the *Canada Gazette* of the 2nd January, 1943, authorizing the new designs as of the latter date. See plate 1.

Twenty-three R.C.M.P. Long Service and Good Conduct medals, mounted with clasp, were struck, and issued to the Commissioner of the Royal Canadian Mounted Police. The name of the recipient was engraved on the edge of each medal.

Four gold medals were struck for the Royal Society of Canada, the Tyrrell Medal in fine gold, engraved "Gustave Lanctot, 1943"; the Miller Medal, 18 carat gold, engraved "Norman Levi Bowen, 1943"; the Henry Marshall Tory Medal, 18 carat gold, engraved "John L. Synge, 1943"; and the Flavelle Medal, 14 carat gold, engraved "B. P. Babkin, 1943." See plate 2 (b) for obverse of Willet G. Miller Medal.



Four 10 carat gold medals and two tombac medals were struck for The Engineering Institute of Canada, the Gzowski Medal, engraved "S. D. Lash, 1942"; two Leonard Medals, engraved "Paul Billingsley, 1942"; and "C. B. Hume, 1942"; one Plummer Medal, engraved "E. A. Allcut, 1942"; two Julian C. Smith tombac medals, engraved "Henry G. Acres, 1942"; and "Robert M. Smith, 1942."

Two master dies in steel were engraved for the new Henry Marshall Tory Medal,  $1\frac{3}{4}$ -inch diameter. The dies were cut by hand by the Mint Engraver, bearing on the obverse, the head of Sir Isaac Newton, originally by Wyon, surrounded by the inscription "*The Royal Society of Canada, Sec. III,*" and on the reverse, a representation of a tablet or plaque, surmounted by the Lamp of Knowledge and a Spray of Laurel. On this tablet are the words "*For Achievement in Scientific Research—Awarded to*"—below, "*Founded 1941*"; around the edge, "*The Henry Marshall Tory Medal.*" See plate 2 (a).



PLATE 2(a)



PLATE 2(b)

At the request of the Department of National Defence, Ottawa, the striking of the Military Long Service and Good Conduct Medal and the Canadian Efficiency Medal was undertaken here. There were 340 Long Service and Good Conduct Medals and 290 Efficiency Medals struck, mounted with clasps, and issued to the Department of National Defence. Obverse and reverse master

punches for these medals were received from the Royal Mint, London. An elaborate set of tools, punches, beds, for the bar mounts, clasps, and many precise and intricate parts were made in our own shops to assemble each medal. The work on each medal involves no less than forty different operations of a highly specialized nature.

The creation of the "Canada Medal" was approved during the year. This medal, which is to be awarded to any personnel of the Armed Forces, Merchant Navy and civilians of Canada or other countries, for "meritorious service above and beyond the faithful performance of duties," has the standard medal crowned effigy of King George VI for the obverse, with inscription "*Georgius VI D: G: Br: Omn: Rex et Indiae Imp:*" and for the reverse the escutcheon of the Coat of Arms of the Dominion surmounted by a Crown, and surrounded by a wreath of maple leaves, with "CANADA" on riband below. The design of the reverse die for this medal was cut direct in steel by the Mint Engraver. The obverse die of the Military Long Service and Good Conduct Medal will be used for the "Canada Medal."

Tools and dies for the clasp and bar from which the medal is suspended were also made here. The bar attached to the mount bears the inscription "Merit" for English-speaking, and "Merite" for French-speaking recipients.

In anticipation of a considerable and urgent demand for war medals of this nature, or for medals of any description that may be authorized by the Canadian Government, the present request for Long Service and Good Conduct and Efficiency Medals seemed to create a favourable opportunity for the reconstruction and enlargement of the Medal Branch on a scale adequate for the satisfactory execution of medals which have in the past been frequently struck outside the Mint.

Accommodation for the new medal unit was provided in the north wing, upper floor, of the new Refinery Building. Light medal machinery was installed to manufacture both round and oval medals, and a model plant has been equipped with the tools necessary to maintain a high artistic level of medal work.

The manufacture of coinage dies, especially in war time, presents one of the most elusive problems involved in minting. The dies transform a disc of metal into a coin of the realm and therefore require much care and intelligence in their preparation. Owing to the difficulty of procuring consistently high-grade die steel erratic results in the length of die life tax the ingenuity of the Die Department to produce dies which will stand the strain of 100 tons pressure striking coins at 100 pieces per minute for the maximum period of time. An improved understanding of the requirements necessary to die steel has led to the only logical conclusion that *Control*, rigid and absolute, is most essential to increased die life. *Control*, that is, the time of heating, the rate of heating, the temperature, distortion, atmosphere within the furnace to prevent oxidation, must be under the complete control of the operator.

Authority was granted for the Mint to purchase the most modern Die Hardening, Annealing and Tempering equipment available, which gives the *Control* desired. It is expected that lengthened die life will result in a worthwhile saving in the cost of steel used for our dies, and an increase in coin production, which is most important.

### Mechanical and Electrical Branch—

The work performed by these two departments has been unusually heavy. To maintain the Mint machines at maximum efficiency was accomplished only by the working of long hours of overtime by members of the artificer and electrical staff. Notwithstanding the excessive amount of work demanded of

them, the operations of minting have not been delayed a minute more than necessary to repair any derangement of the mechanical or electrical appliances. Machines which are called upon to operate continuously twenty-four hours daily after over thirty-five years service, without allowance for any time during the past three years for proper overhauling and checking of wearing parts is bound to break down occasionally without notice, and tend to increase maintenance repairs. It is only fair to the foremen and craftsmen employed in these important branches to express satisfaction at the manner in which they have performed the many tasks they have been called upon to execute during the year. Their zeal, initiative and efficiency deserve every commendation.

The commutator of the direct current generator which generates the power to operate all Coining Division motor equipment was dressed as a precautionary measure on Sunday, January 24. What might have resulted in a major calamity was the breaking down of the motor generator completely on Monday, January 25, due to the burning of some of the windings of the armature. Production throughout the department ceased. It would require a month to make the necessary repairs, but by night-fall, through the kind co-operation of the King's Printer, connection was made to the 220-volt supply of the Printing Bureau and coinage production proceeded after a minimum delay. The failure of the generator was attributed to aged insulation and could not be avoided. Opportunity was given for reinsulating all the windings, and the generator is now as efficient as a new machine.

In preparation to commence the installation of the new high frequency electric melting equipment in the Melting House the old crucible and charcoal grinding mill was dismantled, settling tanks removed and the room renovated. Under the supervision of the Chief Electrician, who designed the layout of the new plant, specifications and drawings were furnished to the Architect's branch of the Public Works Department, to supply foundations for the motor generator set, ducts for bus-bars, water pipes, etc.

To speed up production in the cutting room, a single stroke cutting press was made over into an automatic self-feeding cutting press to cut out the blanks from the steel chromium plated fillets for the five-cent steel coins. The machine will cut 240 blanks per minute, and as the strips or fillets of steel come from the steel mill already gauged, ready for blank cutting, there will be no interruption or interference in the production schedule of the other denominations in progress through the Rolling and Cutting room. A fourth cutting press was necessary for this work. The fitting up of the old single cutter to a self-feeding press meant a saving of several thousand dollars.

The Melting House crucibles, after they have become too badly burned and dangerous for further use as crucibles, making it unsafe to hold about 200 pounds of molten metal, were put in the lathe and turned to make crucible covers and muffle rings. As these covers and rings are hard to get, the salvaged parts are not only rendering a needed service but have meant a considerable reduction in the cost of operating the Melting House.

The special motor propelling the fan in the furnace room of the Assay Office was re-wound by our own electrical staff. As this type of motor could not be replaced for many months, and, as the fan is used to exhaust deadly fumes from the furnace room, no time was lost in completing the repairs.

Maintenance, renewal work and repairs were carried out on the many varied types of minting machinery and electrical equipment. This required hundreds of intricate and unique parts that had to be machined here to keep the melting furnaces, rolling mills, cutting machines, coining presses, automatic balances and other apparatus too numerous to mention all at a high state of efficiency.



### Miscellaneous—

The employment of workers for long hours of overtime and on two or three shifts, and the regulation that has always been in force in the Operative Department that workmen must not leave the department until the accounting of all bullion, metal and coin in all stages of minting was completed, meant a great expansion in the cuisine and dining hall. Over 6,000 hot meals were served each month. They had to be sufficiently substantial in quantity and appetizing in quality to satisfy each employee and supply energy for efficient work up to sixteen hours daily.

The refrigeration plant was enlarged and a universal cooler installed to meet the need of storage for considerable quantities of perishable food. An electric water cooling system for drinking purposes also was installed in place of an antiquated and uneconomical ice-box.

Several thousand pounds of scrap iron, steel, copper and brass were salvaged and sold through the Salvage Division or used in the reduction tanks for Silver Chlorides.

A continuous campaign was carried out emphasizing the importance of the conservation of waste paper, wipers, oil, coin bags, and numerous supplies necessary to the coinage operations, with gratifying results in the saving of many materials.

### ASSAY OFFICE

The Chief Chemist and Assayer reports as follows:—

The number of assays made from 1st January to 31st December, 1943, was as follows:—

GOLD—		
Refinages.....	5,690	
Rough Gold.....	21,193	
Proofs.....	2,394	
Parting Proofs.....	724	
Parting Buttons.....	8,833	
Miscellaneous.....	1,127	
		39,961
SILVER—		
Canadian Coinage }.....	12,436	
Standard Bars }.....		
Pyx.....	2,967	
Newfoundland Coinage }.....	123	
Standard Bars }.....		
Pyx.....	14	
Proofs.....	2,012	
Fine Silver.....	1,106	
Miscellaneous.....	157	
		18,815
MISCELLANEOUS—		
Mint Residues (Sweeps).....	232	
Commercial.....	39	
Assays for Marking Act Inspector.....	43	
Miscellaneous.....	258	
		572
Total Number of Assays.....		59,348

The number of silver assays, 18,815, is the largest made in one year since the opening of the Mint in 1908; the second largest being 14,576 made in the year 1940.

The mean finenesses of Canadian Silver Coinage struck during 1943 were as follows:—

Denomination	Standard Fineness	Mean Fineness
Dollar.....	800.0	Nil
50 cents.....	800.0	799.35
25 cents.....	800.0	799.52
10 cents.....	800.0	799.74

No dollar coins were struck during this year.

Coinage for the Government of Newfoundland was undertaken by the Mint during the year under review and the mean finenesses of silver coins struck were as follows:—

Denomination	Standard Fineness	Mean Fineness
10 cents.....	925.0	924.83
5 cents.....	925.0	924.47

Two fine gold working trial plates were made and fixed against our special fine gold trial plate, and two fine silver working trial plates were made and fixed against the silver trial plate in use. The following amounts of fine gold and silver trial plate sold during the year were  $\frac{1}{2}$  ounce and 24 ounces, respectively.

Ten ounces of fine powdered gray silver were specially made for the National Defence Chemical Laboratories.

Several suspected counterfeit coins were examined for the Bank of Canada and the Royal Canadian Mounted Police.

Owing to the five-cent coins being made from Tombac metal (88 per cent copper, 12 per cent zinc) no nickel blanks were purchased during the year.

A few medals of 18 carat gold were made by the Operative Department. Preliminary investigations and experiments were made in this Department to produce a malleable bar from which the medals were struck.

Investigations were undertaken over a period in the melting of Tombac metal for the dodecagonal five-cent coin and from the information so obtained the control of the composition of ingot and scissel pots can be more strictly governed.

## REFINERY

During the year the Refinery received 4,826 deposits from mines and miscellaneous depositors and 165 from the Vancouver Assay Office containing 3,616,959 ounces of fine gold and 474,386 ounces of fine silver. One rejected deposit is included in the above number received.

Eight thousand eight hundred and seventy-four fine gold trade bars with a gross weight of 3,549,777 ounces containing 3,539,844 ounces of fine gold at an average assay of 997.2; granulated gold with a gross weight of 69,442 ounces containing 69,431 ounces of fine gold at an average assay of 999.83; silver bars



with a gross weight of 453,155 ounces containing 452,783 ounces of fine silver with an average assay of 999.1 and granulated silver with a gross weight of 2,194 ounces containing 2,193 ounces of fine silver with an average assay of 999.5 were delivered to the Mint Office.

Granulated gold weighing 1,646 ounces fine; worn coin weighing 0.237 ounce fine and medal scrap weighing 243 ounces fine were received from the Mint Office.

One-half ounce of fine gold and 24 ounces of fine silver were delivered to the Assay Office for the manufacture of gold and silver trial plates.

One hundred and ninety-six thousand one hundred and eighty-one ounces of the total amount of deposits received were remelted and 4,281 ounces toughened before uniform assays could be obtained.

Sweep amounting to 52.9 tons was recovered, ground, barrelled, sampled and assayed and contained 12,644 ounces of fine gold and 50,545 ounces of fine silver. Sweeps containing 17,662 ounces of fine gold and 76,770 ounces of fine silver were sold during the year.

Four hundred and fifty-two thousand seven hundred and eighty-three ounces of fine silver bars and 2,193 ounces of granulated fine silver were produced from the treatment of 1,026,687 ounces of base and silver chlorides.

As in the preceding year the Refinery was called upon to produce silver and tombac coinage bars and for this operation 4,124,911 ounces of silver and 266,621 pounds of tombac were melted during the period under review.

### DOMINION OF CANADA ASSAY OFFICE, VANCOUVER, B.C.

Disbursements through this office in 1943 for the purchase of gold bullion amounted to \$2,414,688.10, as against \$5,628,080.26 for the calendar year 1942, a decrease of \$3,213,392.16.

Particulars as to source, weights, etc., are as under:—

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territory.....	286	52,709.61	41,156.866	8,810.11
British Columbia.....	288	24,116.11	20,540.529	2,220.36
Alberta and Saskatchewan.....	3	28.76	22.115	1.76
North West Territories.....	1	3.40	2.997	0.23
Jewellery and Dental Scrap.....	144	3,694.62	1,589.807	597.78
	722	80,552.50	63,312.314	11,630.24

The above figures show a net decrease of 738 in the number of deposits, and of 84,205.603 ounces fine gold, as compared with the year 1942.

### GENERAL

The annual stocktaking and inspection of the store of bullion and coin, as required by the Act establishing the Royal Canadian Mint, was conducted by the officers of the Auditor General's Department in March, the results of which will be found in the Auditor General's Report.

The Assay Commissioners, Dr. L. G. Turnbull of the Division of Physics and Electrical Engineering, National Research Council, Mr. R. W. Hoff of the Division of Chemistry, National Research Council, and Mr. R. J. Traill of the Metallic Minerals Division of the Bureau of Mines, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1942 have been minted in accordance with the provisions of the said Act, were sworn in by His Honour, Judge E. J. Daly, and in the presence of Dr. A. K. Eaton, Taxation Investigator as representative of the Department of Finance, on the 4th day of May, 1943.

The findings of these gentlemen indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada since 1858.

I am, Sir,

Your obedient Servant,

A. P. WILLIAMS,  
*For the Master, Royal Canadian Mint*

## APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1903, to its disestablishment on the 30th November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1943.

Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	Value Coin and Bullion
	Ounces	\$	\$	Ounces Fine	\$
1908 to 30th Nov., 1931.....	34,321,068.750	591,419,217.02	7,923,878.73	28,141,076.806	589,651,570.24
1931—1st to 31st Dec.....	299,973.100	5,100,968.08	.....	189,512.838	3,917,577.86
1932.....	3,520,276.570	58,491,549.39	.....	2,873,221.290	59,394,754.05
1933.....	3,331,905.174	53,819,014.01	.....	2,589,648.765	53,532,789.33
1934.....	3,888,848.540	62,201,080.02	.....	3,038,018.961	62,801,423.68
1935.....	3,996,131.927	65,297,776.55	.....	3,177,497.360	65,684,697.95
1936.....	4,552,289.960	74,487,536.98	.....	3,625,548.842	74,946,744.64
1937.....	4,959,970.893	81,311,693.73	.....	3,937,910.698	81,403,837.11
1938.....	5,601,260.642	90,920,063.13	.....	4,308,067.369	89,055,654.13
1939.....	6,181,336.290	100,656,105.55	.....	4,834,214.285	99,932,075.82
1940.....	6,295,218.554	103,169,970.38	30.00	5,026,792.728	103,913,055.43
1941.....	6,444,056.215	105,273,560.67	.....	5,134,347.805	106,136,385.78
1942.....	5,761,045.973	95,338,135.90	.....	4,611,892.227	95,336,270.79
1943.....	4,456,437.559	74,769,168.35	.....	3,645,739.964	75,364,131.92
	93,609,820.147	1,562,255,839.76	7,923,908.73	75,133,489.938	1,561,070,968.73

# APPENDIX B COIN ISSUED IN CANADA

		SILVER					NICKEL	TOMBAC	BRONZE	
		Dollar \$	50c. \$	25c. \$	20c. \$	10c. \$	5c. \$	Total Silver \$	5c. \$	1c. \$
1858 to 1907	New Brunswick, 1861, 2 and 4...				60,000	25,000	10,000	95,000		20,000
	Nova Scotia, 1861,									1,114
	2 and 4... Struck in									26,000
	to Prince Edward Is- land, 1871... Eng- land									4,000
	Rest of Canada, 1858-1907		1,249,018	5,094,978	150,000	3,040,000	2,926,000	12,459,996		10,000
	Totals		1,249,018	5,094,978	210,000	3,065,000	2,936,000	12,554,996		803,315
GOLD										
		Sovereigns £		\$10 \$		\$5 \$				
1908										
to										
1927	627,834	3,480,360	1,388,060							
1928				6,000	535,000			814,000-00		1,224,206
1929				84,000	672,000		4,980,844	867,000		92,100
1930				18,000	164,000		325,000	1,081,000		123,300
1931				34,000	212,000		144,000	326,000		13,400
1932				18,400	134,000		229,400	475,400		51,400
1933					97,000		134,600	287,000		213,200
1934				19,200	105,100		58,000	155,000		120,800
1935					134,400		48,000	172,300		69,900
1936	428,120						38,500	601,020		75,100
1937	306,100			19,300	242,000		241,800	809,200		87,200
1938	240,900			96,000	711,900		273,400	1,322,200		105,400
1939	90,000			96,000	782,000		408,000	1,376,000		184,300
1940	*1,220,732			144,000	867,400		561,900	2,794,032		214,600
1941				968,000	2,343,000		1,534,000	4,845,000		822,800
1942				842,000	1,718,000		974,000	3,534,000		575,300
1943				1,022,000	1,708,000		1,034,000	3,764,000		783,500
				1,564,000	3,402,000		2,078,000	7,044,000		881,300
	627,834	3,480,380	1,388,070	2,285,852	8,718,918	26,609,703	210,000	16,454,444	6,020,802	60,299,719
										4,857,775-50
										1,407,424-50
										6,497,121-5
										5,114

\* Of this amount \$15,000 returned in 1940.

## APPENDIX C

## CANADA

GEORGE THE SIXTH, by the Grace of God, of Great Britain, Ireland and the British Dominions beyond the Seas KING, Defender of the Faith, Emperor of India.

To All To Whom these Presents shall come or whom the same may in anywise concern,

GREETING:

## A PROCLAMATION

<p>F. P. VARCOE, Deputy Minister of Justice, Canada.</p>	}	<p>WHEREAS in and by Section Twenty of the Currency Act, Chapter Forty of the Revised Statutes of Canada, 1927, it is provided that Our Governor in Council may from time to time by proclamation, determine among other things the dimensions of and the designs for any coin.</p>
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Now Know Ye that by and with the advice of Our Privy Council for Canada, We do hereby proclaim, direct and determine as follows:—

That the description of the reverse impression of the Tombac Five-Cent Coin as authorized by Order in Council P.C. 6935, dated August 5, 1942, be changed to read as follows:—

The character V and Torch conjoined, emblematic of Sacrifice and Victory, between two Maple Leaves, and dividing the date of the year; Canada above, and Cents below; and V also designates the denomination or value of five cents.

And We Do Further Proclaim and direct that this Our proclamation shall come into operation on the second day of January in the year one thousand nine hundred and forty-three.

Of All Which Our Loving Subjects and all others whom these Presents may concern are hereby required to take notice and to govern themselves accordingly.

In Testimony Whereof, We have caused these Our Letters to be made Patent and the Great Seal of Canada to be hereunto affixed. Witness: Our Dear Uncle, Our Right Trusty and Right Well-beloved Cousin and Counsellor, Alexander Augustus Frederick George, Earl of Athlone, Knight of Our Most Noble Order of the Garter, a Member of Our Most Honourable Privy Council, Knight Grand Cross of Our Most Honourable Order of the Bath, Grand Master of Our Most Distinguished Order of Saint Michael and Saint George, Knight Grand Cross of Our Royal Victorian Order, Companion of Our Distinguished Service Order, Colonel in Our Army (retired), having the honorary rank of Major-General, one of Our Personal Aides-de-Camp, Governor General and Commander-in-Chief of Our Dominion of Canada.

At Our Government House, in Our City of Ottawa, this seventeenth day of November, in the year of Our Lord one thousand nine hundred and forty-two and in the sixth year of Our Reign.

By Command,

(Signed) E. H. COLEMAN,

*Under Secretary of State.*



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Government  
Publications



CANADA

DEPARTMENT OF FINANCE

*Canada*

# ROYAL CANADIAN MINT

Report  
For the Calendar Year  
1944

OTTAWA  
EDMOND CLOUTIER  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1945







DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year  
1944

Published by Authority of the HON. J. L. ILSLEY, K.C., M.P.,  
Minister of Finance

OTTAWA  
EDMOND CLOUTIER  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
1745





## ROYAL CANADIAN MINT

OTTAWA, 16th April, 1945.

The Honourable  
The Minister of Finance,  
Ottawa, Ontario.

SIR:

I have the honour to submit the following report on the operations of the Royal Canadian Mint during the calendar year 1944.

### COINAGE

Coinage demands continued to be much in excess of the normal production capacity of the Mint, and it was again necessary to operate two and three shifts daily, Sundays included, for the greater part of the year.

The tombac five-cent piece which replaced the nickel coin in the latter part of the year 1942 and during the year 1943, in order to conserve supplies of nickel for war purposes, was replaced in 1944 by a chromium-plated mild steel coin of five-cent denomination. The new coin is described in detail later in this Report.

A comparative statement of the value of coin issued, by denominations, for the years 1943 and 1944, is shown in the following table:—

Denomination	Coin Issued in	
	1943	1944
	\$ cts.	\$ cts.
SILVER COIN—		
1 dollar.....	Nil	Nil
50 cents.....	1,564,000.00	1,230,000.00
25 cents.....	3,402,000.00	1,818,000.00
10 cents.....	2,078,000.00	958,000.00
Total Silver.....	7,044,000.00	4,006,000.00
TOMBAC COIN—		
5 cents.....	1,238,000.00	400.00
STEEL COIN—		
5 cents.....		571,000.00
BRONZE COIN—		
1 cent.....	881,300.00	454,600.00
Total.....	9,163,300.00	5,032,000.00
	Number of pieces	
Representing.....	150,406,000	76,200,000

Distribution of the coin issued to the various Agencies of the Bank of Canada was as follows:—

—	Silver			Tombac	Steel	Bronze
	50 cents \$	25 cents \$	10 cents \$	5 cents \$	5 cents \$	1 cent \$
Calgary.....	68,000	226,000	76,000	.....	58,500	42,600
Charlottetown.....	.....	12,000	12,000	.....	3,000	4,100
Halifax.....	84,000	124,000	74,000	.....	45,500	44,000
Montreal.....	14,000	76,000	74,000	.....	131,000	66,500
Ottawa.....	14,000	120,000	42,000	400	25,000	8,900
Regina.....	152,000	302,000	134,000	.....	43,500	52,500
Saint John.....	30,000	88,000	38,000	.....	20,000	25,000
Toronto.....	532,000	580,000	306,000	.....	167,000	136,400
Vancouver.....	216,000	8,000	112,000	.....	46,500	34,500
Winnipeg.....	120,000	282,000	90,000	.....	31,000	40,100
	1,230,000	1,818,000	958,000	400	571,000	454,600

No Dollar Coins were issued during the Year.

In addition to the above, there were executed for the Government of Newfoundland the following coinages:—

—	Value	Number of Pieces
	\$ cts.	
SILVER—		
10 cents.....	15,147.10	151,471
5 cents.....	14,325.20	286,504
BRONZE—		
1 cent.....	13,287.76	1,328,776
	42,760.06	1,766,751

Worn and mutilated coin withdrawn from circulation:

—	Withdrawn	Net Increase in Circulation
	\$ cts.	\$ cts.
Silver Coin.....	42,233.75	3,963,766.25
Nickel Coin (mutilated only).....	976.35	.....
Tombac Coin—5 cents.....	69.65	330.35
Steel Coin—5 cents.....	.....	571,000.00
Bronze Coin.....	1,897.87	452,702.13

### GOLD BULLION

Gold deposited at the Mint again showed a decrease, the receipts being the lowest since the year 1933. 3,857 deposits weighing 3,487,810 ounces gross were received from Canadian Mining Companies and sundry persons, and 96 deposits weighing 49,924 ounces gross were received from the Dominion of

Canada Assay Office, Vancouver, B.C. The total gross weight of gold received at the Mint, including mutilated gold coin, was 3,537,734 ounces, containing by assay 2,862,048 ounces fine gold and 385,991 ounces fine silver. This shows a decrease as compared with the year 1943 of 1,037 in the number of deposits, gross weight 918,703 ounces, gold 754,910 ounces fine and silver 88,394 ounces fine.

The net amount paid by cheque to depositors was \$107,504,172.45. In addition 5,603.962 ounces of fine gold with a statutory value of \$115,844.59 were also issued in payment of gold deposits.

Postage collected for the Postmaster General on deposits shipped by mail, postage collect, amounted to \$13,165.36.

There were 577 gold deposits received at the Dominion of Canada Assay Office, Vancouver, B.C.

Details of the origin of the bullion deposited at Vancouver and Ottawa are shown in the following table:—

Source	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
From Canadian Mines and Refineries—			
Ontario.....	2,135,742.075	1,724,975.760	225,046.97
Quebec.....	1,073,876.275	880,766.502	120,627.19
British Columbia.....	135,588.080	109,626.768	19,824.86
Manitoba.....	103,842.375	84,301.336	6,297.93
Yukon.....	30,569.640	23,814.864	5,124.83
Nova Scotia.....	6,251.250	5,841.465	187.68
North West Territories.....	30,644.600	21,927.511	5,760.22
Alberta and Saskatchewan.....	79.315	57.322	5.05
Total from Mines and Refineries..	3,516,593.610	2,851,311.528	382,874.73
From Jewellery and Scrap.....	20,200.410	9,456.454	2,784.56
Mutilated Gold Coin.....	.236	.213	.....
GRAND TOTAL.....	3,536,794.256	2,860,768.195	385,659.29

A detail of the fine gold issued in the form of trade bars to the Bank of Canada and granulated, sweep and medals to sundry persons is shown hereunder:

	Ounces Fine
6,858 Trade Bars to Bank of Canada.....	2,739,922.833
Depositors.....	5,603.962
Sales to Manufacturers.....	74,866.088
Medals.....	5.009
Sweep.....	9,357.108
	2,829,755.000

This total shows a decrease of 815,984.964 ounces fine as compared with the year 1943.

## OPERATIVE DEPARTMENT

Superintendent—MR. R. J. EDMUNDS

Coinage production, 76,490,775 pieces, of all denominations during the year 1944 may still be considered a greater than normal performance over pre-war years, although the output was only about half that of 1943. A decrease was naturally anticipated as all signs indicated that in metallic currency circulating throughout the Dominion, a saturation point had been reached early in the new year. The yearly figures of coin produced since 1940, and passed for issue in

Canada, viz., 1940—127,767,415; 1941—82,103,728; 1942—105,481,533; 1943—151,684,612; 1944—74,724,024, make an aggregate of 541,761,312 pieces minted in the five years of the war. This unprecedented coinage would also give credence to the belief that demands for specie should moderate presently to some extent.

The first half of 1944 shows requisitions for coin to be only trifling, and it was possible to build up a reserve stock of coin and blanks of about 33,000,000 pieces. The coinage demand, however, during the latter part of the year was of such volume that even this surplus was inadequate and the Operative Department was unable to meet all requirements fully in the late fall.

The following table sets out by denominations the number of coins produced in 1943 and 1944:—

	1943	1944
	Pieces	Pieces
DOMINION OF CANADA		
SILVER (800 fine)—		
1 dollar.....		
50 cents.....	3,109,583	2,460,205
25 cents.....	13,559,575	7,216,237
10 cents.....	21,143,229	9,383,582
TOMBAC—		
5 cents.....	24,760,256	
STEEL—		
5 cents.....		11,532,784
BRONZE—		
1 cent.....	89,111,969	44,131,216
Canadian Total.....	151,684,612	74,724,024
NEWFOUNDLAND		
SILVER (925 fine)—		
10 cents.....	104,706	151,471
5 cents.....	351,666	286,504
BRONZE—		
1 cent.....	1,239,732	1,328,776
Newfoundland Total.....	1,696,104	1,766,751
Total Canadian and Newfoundland.....	153,380,716	76,490,775

At the request of the Newfoundland Government a coinage of ten-cent, five-cent and one-cent coins was executed during the year in quantity as shown in the foregoing table.

The five-cent coin of tombac metal was replaced on the 1st January, 1944, by a new coin of Steel in Chromium Finish. The steel was purchased in strips, chromium plated, ready for the cutting presses; thus eliminating the casting of coinage bars and rolling them to gauge, which caused considerable congestion of work in the Melting House and Rolling Room while minting the tombac coins during 1943. The designs of both the obverse and reverse remain the same as for the tombac five-cent coin with the "Victory" motif on the reverse.

Owing to the slackening off in coinage production, work on the three-shift basis was discontinued on March 11th, 1944. The services of thirty-five Apprentices and Craftsmen Grade 1, were dispensed with on the 31st March. On the 30th of June, the Operative Division Staff was further reduced by the release



of thirty-five more Apprentices and Craftsmen Grade I. Through the co-operation of the Dominion Government Employment and Selective Service Officers these men were offered, and many accepted positions of employment of a similar nature in war plants before their release from the Mint, which meant a minimum of hardship and loss of wages. At the end of the year the total number of officers, craftsmen and apprentices was 95, compared with 176 at the close of 1943. Four of our best and skilled Craftsmen joined the Armed Forces and are on military leave.

Details of bullion and metals melted and cast into coinage bars, bars rolled, blanks cut, and good coins passed for issue are summarized in the following table:—

—	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Ozs.
FOR CANADA				
SILVER (800 fine)—				
1 dollar.....	5,165.00			
50 cents.....	1,722,346.30	1,527,161.80	1,123,531.07	922,044.23
25 cents.....	2,238,849.80	2,395,712.60	1,524,032.90	1,354,031.00
10 cents.....	1,335,253.40	1,180,922.30	784,867.95	700,509.07
Total Silver.....	5,301,614.50	5,103,796.70	3,432,431.92	2,976,584.30
	Lbs.	Lbs.	Lbs.	Lbs.
STEEL—				
5 cents.....			120,595.53	111,829.56
BRONZE—				
1 cent.....	507,681.70	524,848.19	357,022.77	314,426.83
	Ozs.	Ozs.	Ozs.	Ozs.
FOR NEWFOUNDLAND				
SILVER (925 fine)—				
10 cents.....	49,395.50	19,002.80	12,231.14	11,237.05
5 cents.....		38,455.50	22,179.33	10,692.66
Total Silver— (925 fine).....	49,395.50	57,458.30	34,410.47	21,929.71
SILVER (800 fine)—				
10 cents.....	41,890.90			
	Lbs.	Lbs.	Lbs.	Lbs.
BRONZE—				
1 cent.....		15,860.63	10,785.23	9,491.00
	Short Tons	Short Tons	Short Tons	Short Tons
	438.74	446.81	363.06	320.68

### Melting House:

As mentioned in last year's report, the extensive preliminary preparations necessary to install the new high-frequency electric melting furnaces were well in hand in 1943. The melting equipment was completely installed and in operation early in 1944.

A novel feature was introduced in the design of the furnaces used, and in the application of the inductive method for melting. This required electrical equipment of somewhat special character. The Lift Coil Furnace is particularly adapted to the melting of precious metals as the recovery of the entire charge is essential for accurate accounting of the gold, silver or copper given to work daily. After the bullion or metal is melted in the crucible, the furnace box containing the coil is lifted and the crucible, filled with molten metal, is free to be carried to the molds for casting into bars. The heat is concentrated within the charge itself, the melt acting as the secondary. The primary or inductor coil in the furnace surrounding the melt is cooled by water. The loss of heat is negligible, which is not only conducive to comfortable and skilled handling, but to greater efficiency in the use of energy, as no heat is radiated from the sides of the furnace.

The high-frequency electric induction method has great and important advantages from a metallurgical standpoint, viz., freedom from contamination of the melt, the high temperature obtainable, and the thorough circulation of the molten charge by the electromagnetic forces within it. Inherent in the furnace is its stirring feature. Segregation, so often a troublesome cause of stop-pots by manual or mechanical stirring, is almost impossible. Actual figures for 1943 and 1944 show a decrease from 8% to 1% in the number of "pots" of silver meltings rejected. When one considers the fact that every stop-pot requires remelting to obtain the prescribed composition of coinage bars, this decrease results in considerable saving of labour and power costs.

The adoption of electrical energy in place of oil as a fuel, has been accompanied by several incidental economies, such as firebrick and refractory materials, which are no longer needed, reduced operating costs and more rapid melting.

A complete re-arrangement of the accessory equipment for finishing the coinage bars after being cast was made, in keeping with the new plant. The lineshaft, shears, assay cutter, files and work bench were moved into the space previously occupied by the oil furnaces and combustion chamber. Tracks and turn-tables were laid in the floor on which the mould carriages travel from the pouring table to the plunging tanks. The overhead crane was arranged to travel the full length of the room instead of across. Ventilating fans were installed in the lantern light. Also, an electric mould-heating oven was made in our own shops to heat the moulds sufficiently for the first round.

During the year 438.74 short tons of bullion and metal were melted and cast into coinage bars of silver and bronze.

In addition, 36,225 ounces of silver worn coins were cast into 1,000-ounce ingots to determine the composition; and 1,560 pounds of mutilated nickel coins were cast into ingots to destroy their identity for purposes of sale as scrap metal; 3,540 pounds of bronze worn coins were melted and cast into one-cent coinage bars, and 2,013 pounds of tin into working slabs. For the Department of National Defence 7,607 ounces of sterling silver were melted.

### **Rolling Room:**

The additional work done in the Rolling Room besides rolling 446.81 tons of coinage bars to the gauge of each denomination, consisted of:—

- (1) 27,873 lead discs from bars rolled for the Assay Office.
- (2) 772.85 ounces of fine silver rolled for 10-grain and 26-grain discs for the Assay Office.

### **Cutting Room:**

To overcome any possibility of steel cuttings and scrap from the steel coinage fillets for five-cents contaminating the silver and bronze metal which

has to be re-melted, a compartment, to house the entire process of cutting, sorting, and marking the edges of the chromium plated steel blanks, was erected contiguous to the Rolling and Cutting Rooms.

The cutting press which had been adapted last year to automatic self-feeding the strips to cut the steel blanks gave continuous satisfactory service. A new sorting table and planchet upsetting machine was installed to complete this unit.

### Annealing Room:

The new centrifugal drying machine mentioned in the last report was installed early in 1944 and has been used steadily. It has about twice the capacity of the old machine. A good deal of time is saved by its use, resulting in increased output.

### Press Room:

A statement of the number of dies used, by denomination, and the number of good pieces struck per pair of dies is given in the following table for 1943 and 1944:—

Denomination	1943				1944			
	Number of Good Pieces Coined	Number of Dies Used		Number of Pieces per Pair of Dies	Number of Good Pieces Coined	Number of Dies Used		Number of Pieces per Pair of Dies
		Obv.	Rev.			Obv.	Rev.	
50 cents..	3,109,583	168	118	21,745	2,460,205	127	101	21,581
25 cents..	13,559,575	456	491	28,426	7,216,237	276	282	25,865
10 cents..	21,143,229	709	535	33,992	9,383,582	436	384	22,887
5 cents..	*24,760,256	352	323	73,364	†11,532,784	348	364	32,395
1 cent..	89,111,969	421	331	237,000	44,131,216	215	174	226,896
	151,684,612	2,106	1,798	77,707	74,724,024	1,402	1,305	55,208
		3,904				2,707		
	*Tombac Metal				†Steel			

### Die and Medal Branch:

The Die Department prepared 2,857 dies, punches and matrices for Canadian coinages, and 181 dies for Newfoundland coinage, compared with a total of 3,912 dies in 1943.

Twenty-six R.C.M.P. Long Service and Good Conduct medals, mounted with clasp, were struck and issued to the Commissioner of the Royal Canadian Mounted Police. The name of the recipient was engraved on the edge of each medal.

Three gold medals were struck for the Royal Society of Canada, the Tyrrell Medal in fine gold, engraved "Harold A. Innes, 1944"; the Henry Marshall Tory Medal, 18 carat gold, engraved "Frank Allen, 1944"; and the Flavell Medal, 14 carat gold, engraved "Velyien Ewart Henderson, 1944". One 10 carat gold medal, the Gzowski Medal, engraved "Frank E. Sterns, 1943", and three tombac medals, were struck for the Engineering Institute of Canada, the Sir John Kennedy Medal engraved "Chalmers Jack Mackenzie, 1943", and one Julian C. Smith medal, engraved "George J. Desbarats, 1943", and one Julian C. Smith medal, engraved "Frederic H. Sexton, 1943".



The striking of the Long Service and Good Conduct Medals and the Efficiency Medals on behalf of the Department of National Defence, and the manufacture of tools, punches and beds for the clasps, bar mounts and other work necessary in this connection, was continued intermittently throughout the year with very limited staff spared part time from coinage production work.

There were 160 Long Service and Good Conduct Medals, 1,960 Canadian Efficiency Medals, 1,500 Second award Bar Mounts to the Efficiency Medal, completed and boxed for delivery to the National Defence Department. A supply of clasps was also made up in advance to complete the present order of 7,000 Efficiency Medals for the Army and Air Force.

At the request of the Under-Secretary of State for External Affairs several sketches were prepared by the Mint Engraver and submitted to that Department of a design for a special medal to be presented by the Canadian Ambassador to the Republic of Brazil as an award to the students of Brazilian educational institutions obtaining the highest proficiency in the study of Canadian history and geography.

A pair of master dies was subsequently engraved here by the Mint Engraver from the approved sketches. These dies were cut in the steel direct by hand and are  $2\frac{1}{16}$ " in diameter. The design may be described as follows:—

For the obverse, a relief map of the Dominion of Canada and of the Republic of Brazil on a globe, both countries projected into prominence on an outline map of the Western Hemisphere; the words "CANADA" and "OTTAWA", the capital of Canada, are inscribed on the one, and "BRASIL" and "RIO DE JANEIRO", the capital of Brazil, on the other; above, is a figure of a girl, representing Canada, in a sitting posture with right arm and hand extended in greeting to a similar figure of a young lady with arm and hand upraised, representing Brazil. In the background above are displayed the Northern Lights and cumulus cloud effects, while the globe appears to be floating in the clouds. A small outline of a ship and aeroplane represent the means of transportation between the two countries. A space in the exergue below is left for the date or name of recipient.

For the reverse, a representation of the shield, only, in a plain circular field, of the Arms of Canada, emblematic of the four original races of Canada, English, Scottish, Irish and French, all joined together on the branch of maple leaves; "CANADA" above, and "BRASIL" below; between the words on each side are engraved the Southern Cross, part of the Arms of Brazil and a Canadian Maple Leaf.

The motif depicted in the obverse design appears to convey without inscription or words the spirit of friendliness between the two countries, Canada and Brazil, to be in keeping with the Canadian Ambassador's idea to encourage the study of the history and geography of Canada by the young and growing population of Brazil.

Twenty-five Canada-Brazil Medals were struck from these dies and forwarded to the Under-Secretary of State for External Affairs for transmission to Brazil.

Fourteen specimens of the "Canada Medal" instituted last year for meritorious service above and beyond the faithful performance of duties, were struck for special presentation only.

Additional work under the Engraver's immediate supervision included much experimental medal work on designs, tools, clasps, and punches. Considerable research in connection with equipment and organization for an enlarged medal branch was also carried out, which it is hoped will be of value if further expansion is necessary to strike anticipated orders for War Service Medals.

## Mechanical and Electrical Branch:

In addition to a considerable amount of maintenance work, operating repairs and machine replacements, the mechanics and electricians carried out the manufacture and installation of many machinery parts and electrical apparatus added during the year to the general equipment. New plant and machinery in the Melting House, Cutting Room and Annealing Room purchased direct from the manufacturers were also erected in position by our own staff.

The main feature of the year's work was the installation of the high-frequency electric melting furnaces. Under the able direction of the Foreman Electrician, the special generator set was erected, the starting equipment, control panels, static capacitors or condensers, were all assembled and wired between the various parts. So efficiently was the whole elaborate apparatus installed and assembled that upon inspection by the technical expert from the manufacturing company no changes were found necessary for immediate starting and operation of the furnaces.

The generator set is arranged to give 960 cycle current rated 167 k.w., 1,800 r.p.m., 800 volts, changing the frequency from 60 cycles, 550 volts, 3 phase. Each furnace is designed for 83 k.w. and to operate simultaneously from the 167 k.w. generator. Each furnace will melt about 190 pounds of bronze or silver bullion in 20 to 30 minutes.

The three 15 K.V.A. lighting transformers were replaced by three 25 K.V.A. transformers in the sub-station. New secondary distribution panels for lighting were also installed.

Fluorescent lighting was placed in the Medal Branch, Mint Office, Chief Assayer's Office, and the Superintendent's Office.

The use of soft coal for heating and supplying steam for coinage and gold refining from the three 75-H.P. boilers was discontinued on the last day of 1944, and the boilers were re-fitted with oil-burners.

The boilers had been thoroughly cleaned and overhauled during the summer months and passed by the Inspector.

## Miscellaneous:

Continued efforts to eliminate hazards, cut down wastage of paper, nails, wipers, oil, coin bags and numerous other supplies, have resulted in reducing the number of accidents, and a considerable saving of much valuable material which otherwise might not have been salvaged.

The Operative Department contributed to the waste paper drive organized by a Civil Service Committee.

Representatives of the Department of National Health and Welfare visited the Mint during the year. The inspection of safety devices around machinery, first aid facilities, food storage and cafeteria, and the general working conditions, was made.

## ASSAY OFFICE

Chief Chemist and Assayer—A. L. ENTWISTLE, F.R.I.C., M.I.M.M.

The number of assays made from the 1st January to 31st December, 1944, was as follows:—

GOLD—	
Refinages.....	4,764
Rough Gold.....	18,374
Proofs.....	2,181
Parting Proofs.....	658
Parting Buttons.....	7,194
Miscellaneous.....	828
	<hr/> 33,999



SILVER—		
Canadian Coinage		
Standard Bars.....	5,616	
Pyx.....	1,690	
Newfoundland Coinage		
Standard Bars.....	118	
Pyx.....	23	
Proofs.....	1,285	
Fine Silver.....	1,048	
Miscellaneous.....	338	
		10,118
MISCELLANEOUS—		
Mint Residues (Sweeps).....	364	
Commercial.....	38	
Assays for Marking Act Inspector.....	82	
Determination of base metals in alloys, etc.....	299	
		783
Making a Total of.....		44,900

The mean finenesses of Canadian Coinage struck during the year 1944 were as follows:—

Denomination	Standard Fineness	Mean Fineness
50 cents.....	800·0	799·38
25 cents.....	800·0	799·58
10 cents.....	800·0	799·91

The mean finenesses of Newfoundland Coinage struck during 1944 were as follows:—

Denomination	Standard Fineness	Mean Fineness
10 cents.....	925·0	924·79
5 cents.....	925·0	925·55

Gold bullion deposits received at the Mint during the year were 3,953, gross weight 3,537,734 ounces including 96 deposits from the Vancouver Assay Office, 253 deposits of scrap jewellery, dentists' scrap, etc., and 376 deposits of fine gold, the latter weighing 740,181 ounces which were over 995·0 fine and did not require refining.

The average assay of crude bullion from mines was gold 760·89, silver 138·01, base 101·10.

The largest amount of gold bullion received in one year was in 1941. The fine gold contents were 5,092,609 ounces while during the year under review the fine gold contents of bullion received were only 2,862,048 ounces.

Two fine gold working trial plates were made and fixed against our special fine gold plate (fineness 999·95) and three silver working trial plates were made and fixed against the fine silver trial plate (fineness 1000·0) in use.

The amount of fine silver trial plate sold during the year was 24 ounces.

Powdered gray fine silver was specially made and 92·95 ounces were sold to the National Defence Chemical Laboratories.

One hundred ounces of pure silver chloride were produced containing 75.26 ounces of fine silver and sold to a silver plating company. Twenty-two ounces of fine silver in the form of sheets 56/1000" gauge were also sold to the same firm.

Gold cornets from assays were received from the Vancouver Assay Office containing 32.101 ounces of fine gold. This gold was replaced by 32.104 ounces of fine gold trial plate (fineness 999.9).

Several suspected counterfeit coins were examined and assayed for the Bank of Canada.

No nickel assays of five-cent blanks were made as no nickel five-cent pieces were struck. The five-cent Tombac coin was replaced during the year with a five-cent piece struck from fillets of chromium plated steel.

Several medals of various gold carats, struck in the Operative Department, were electrolytically plated with a very small deposit of fine gold.

Owing to the installment of the two high frequency induction furnaces in the Melting House, replacing the four oil furnaces, the stop-pots in silver coinage bars were reduced almost to a minimum which of course results in a large saving in time and labour. The induction furnaces produce a homogeneous molten metal and all errors caused by inadequate manual stirring are eliminated.

## REFINERY

Superintendent—MR. P. W. BOND

The following report gives details of work carried out in the Refinery during the year 1944.

During this period 3,857 deposits were received from mines and miscellaneous depositors and 96 deposits from the Vancouver Assay Office, containing in all 2,862,048 ounces of fine gold and 385,991 ounces of fine silver.

Six thousand, eight hundred and eighty-four fine gold trade bars, with a gross weight of 2,744,807 ounces, containing 2,766,374 ounces of fine gold at an average assay of 996.96; granulated gold with a gross weight of 79,486 ounces, containing 79,475 ounces of fine gold at an average assay of 999.86; silver bars with a gross weight of 377,802 ounces, containing 377,512 ounces of fine silver at an average assay of 999.23, and granulated silver with a gross weight of 2,000 ounces, containing 1,999 ounces of fine silver at an average assay of 999.5, were delivered to the Mint Office.

Granulated gold weighing 732 ounces fine; worn coin weighing 0.213 ounces fine; medal scrap weighing 18 ounces fine and silver worn coin weighing 40 ounces fine were received from the Mint Office.

Thirty-two ounces of fine gold cornets were received from the Vancouver Assay Office, melted and forwarded to the Assay Office to be replaced by proof plate for the Vancouver Assay Office.

One hundred and thirty-four thousand, one hundred and sixty-eight ounces of the total amount of deposits received were remelted, and 1,259 ounces toughened, before uniform assays could be obtained.

Sweep amounting to 39,872 tons was recovered, ground, barrelled, sampled and assayed, and contained 8,629 ounces of fine gold, and 41,216 ounces of fine silver, and sweeps amounting to 40.2 tons containing 9,152 ounces of fine gold, and 41,732 ounces of fine silver, were delivered to the Mint Office.

Three hundred and seventy-seven thousand, five hundred and twelve ounces of fine silver bars, and 1,999 ounces of granulated fine silver, were produced from treatment of 822,179 ounces of base and silver chloride.

In 1938 an acid proof metal alloy launder tank with a capacity of 83 cubic feet, was erected in the basement of the Refinery, for drying the precipitate from the settling tank.

This tank was found to be unsatisfactory as the precipitate reacted with the metal.

Mr. N. A. Parker, Assayer Grade 1, drew up plans for an iron reinforced cement tank with a capacity of 159 cubic feet. It consists of two bottoms, one false made of two inch planks perforated with holes and covered with Hessian cloth which is used as the medium for filtering, the other bottom, or floor, is sloped toward the drain. There are openings at the end to allow a circulation of air to pass under the false bottom to facilitate the drying. The inner face of tank and false bottom are painted with acid proof tar paint.

This tank has shown its advantages over the previous type, the increase in capacity considerably decreases the time for drying and the precipitate has no appreciable reaction on the tank.

The work entailed in its construction was carried out by our own staff at a minimum of cost under the supervision of Mr. N. A. Parker.

## DOMINION OF CANADA ASSAY OFFICE, VANCOUVER, B.C.

Manager—MR. G. N. FORD

The sum of \$1,436,665.86 was disbursed for the purchase of gold bullion deposited at this office during the calendar year 1944.

A statement of the origin, weights, etc., of the deposits received during 1944, and comparative statements for the years 1939 to 1944, inclusive, are shown hereunder:—

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territory.....	207	30,569.64	23,814.864	5,124.83
British Columbia.....	253	15,360.93	12,486.271	2,015.01
Alberta and Saskatchewan.....	4	68.59	51.498	4.16
Jewellery and Dental Scrap.....	113	2,984.71	1,326.395	505.55
	577	48,983.87	37,679.028	7,649.55

## COMPARATIVE STATEMENTS

(1) Totals for each year under the following headings—1939 to 1944 inclusive.

Year	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
1939.....	2,326	221,137.00	178,707.286	30,235.32
1940.....	2,224	219,976.14	175,301.091	31,822.17
1941.....	1,978	202,766.19	163,014.058	28,462.72
1942.....	1,460	183,738.18	147,517.917	26,422.54
1943.....	722	80,552.50	63,312.314	11,630.24
1944.....	577	48,983.87	37,679.028	7,649.55

(2) Totals for each year—1939 to 1944 inclusive, disbursed for gold bullion purchases.

1939.....	\$6,442,365·81
1940.....	6,685,353·07
1941.....	6,216,906·58
1942.....	5,628,080·26
1943.....	2,414,688·10
1944.....	1,436,665·86

### GENERAL

The decease of the late Master, Mr. Henry E. Ewart, severed a connection of some 37 years with this Mint. Mr. Ewart was first appointed to the post of Second Senior Clerk in the Operative Department when the Ottawa Branch of the Royal Mint was opened in January, 1908. He served in various positions in the Department and was promoted to the post of Master in 1938. The Mint sustained a great loss in his passing on 28th April, 1944.

The annual stocktaking and inspection of the store of bullion and coin, as required by the Act establishing the Royal Canadian Mint, was conducted by the officers of the Auditor General's Department in March, the results of which will be found in the Auditor General's Report.

The Assay Commissioners, Dr. L. G. Turnbull of the Division of Physics and Electrical Engineering, National Research Council, Mr. R. W. Hoff of the Division of Chemistry, National Research Council, and Mr. R. J. Traill of the Metallic Minerals Division of the Bureau of Mines, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1943 have been minted in accordance with the provisions of the said Act, were sworn in by His Honour, Judge A. G. McDougall, and in the presence of Dr. A. K. Eaton, Taxation Investigator, as representative of the Department of Finance, on the 4th day of May, 1944.

The findings of these gentlemen indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act with the exception of two fifty-cent pieces in respect of which the Commissioners report that "the weights of which were respectively 178·31 and 178·28 grains, the same being below the remedy allowance in weight by 0·19 and 0·22 grain".

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada since 1858.

I am, Sir,

Your obedient Servant,

A. P. WILLIAMS,

For the Master, Royal Canadian Mint



## APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1908, to its disestablishment on the 30th November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1944.

Year	GOLD RECEIVED		GOLD ISSUED		Statutory Value Coin and Bullion
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	
	Ounces	\$	\$	Ounces Fine	\$
1908 to 30th Nov., 1931.....	34,321,068.750	591,419,217.02	7,923,878.73	28,141,076.806	589,651,570.24
1931—1st to 31st Dec.....	299,973.100	5,100,968.08	.....	189,512.838	3,917,577.86
1932.....	3,520,276.570	58,491,549.39	.....	2,873,221.290	59,394,754.05
1933.....	3,331,905.174	53,819,014.01	.....	2,589,648.765	53,532,789.33
1934.....	3,888,848.540	62,201,080.02	.....	3,038,018.961	62,801,423.68
1935.....	3,996,131.927	65,297,776.55	.....	3,177,497.360	65,684,697.95
1936.....	4,552,289.960	74,487,536.98	.....	3,625,548.842	74,946,744.64
1937.....	4,959,970.893	81,311,693.73	.....	3,937,910.698	81,403,837.11
1938.....	5,601,260.642	90,920,063.13	.....	4,308,067.369	89,055,654.13
1939.....	6,181,336.290	100,656,105.55	.....	4,834,214.285	99,932,075.82
1940.....	6,295,218.554	103,169,970.38	30.00	5,026,792.728	103,913,055.43
1941.....	6,444,056.215	105,273,560.67	.....	5,134,347.805	106,136,385.78
1942.....	5,761,045.973	95,338,135.90	.....	4,611,892.227	95,336,270.79
1943.....	4,456,437.559	74,769,168.35	.....	3,645,739.964	75,364,131.92
1944.....	3,537,734.636	59,163,794.79	.....	2,829,755.000	58,496,226.17
	97,147,554.783	1,621,419,634.55	7,923,908.73	77,963,244.938	1,619,567,194.90











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(DEPARTMENT OF FINANCE)

# ROYAL CANADIAN MINT

Report  
For Calendar Year  
1945

OTTAWA  
EDMOND CLOUTIER, B.A., L.P.E., C.M.G.,  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
CONTROLLER OF STATIONERY

1946







CANADA

Government  
Publications

DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year  
1945

Published by Authority of the Right Hon. J. L. ILSLEY, K.C., M.P.,  
Minister of Finance

OTTAWA  
EDMOND CLOUTIER, B.A., L.Ph., C.M.G.,  
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CONTROLLER OF STATIONERY  
1946





# ROYAL CANADIAN MINT

OTTAWA, 23rd May, 1946.

The Right Honourable  
The Minister of Finance,  
Ottawa, Ontario.

SIR:

I have the honour to submit the following report on the operations of the Royal Canadian Mint during the calendar year 1945.

## COINAGE

The issues of coin as detailed below, exceeded those of the previous year by \$83,100. Silver dollars to the value of \$38,300 were coined and issued for the first time since 1939.

A comparative statement of the value of coin issued, by denominations, for the years 1944 and 1945, is shown in the table below:—

Denomination	Coin issued in	
	1944	1945
	\$ cts.	\$ cts.
SILVER COIN—		
1 dollar.....		38,300.00
50 cents.....	1,230,000.00	980,000.00
25 cents.....	1,818,000.00	1,324,000.00
10 cents.....	958,000.00	1,074,000.00
Total Silver.....	4,006,000.00	3,416,300.00
TOMBAC COIN—		
5 cents.....	400.00	
STEEL COIN—		
5 cents.....	571,000.00	950,300.00
BRONZE COIN—		
1 cent.....	454,600.00	748,500.00
Total.....	5,032,000.00	5,115,100.00
	Number of pieces	
Representing.....	76,200,000	111,890,300

In addition the following coinages were executed for the Government of Newfoundland:—

	Value	Number of Pieces
	\$ cts.	
SILVER—		
10 cents.....	17,583.30	175,833
5 cents.....	10,191.40	203,828
	27,774.70	379,661

Distribution of the coin issued to the various Agencies of the Bank of Canada was as follows:—

	Silver				Steel	Bronze
	Dollar \$	50 cents \$	25 cents \$	10 cents \$	5 cents \$	1 cent \$
Calgary.....		24,000	42,000	84,000	44,500	45,200
Charlottetown.....		2,000	20,000	10,000	4,500	4,800
Halifax.....	4,000	100,000	148,000	80,000	48,000	47,500
Montreal.....	6,000		190,000	296,000	262,000	204,000
Ottawa.....	10,300	8,000	72,000	32,000	61,800	13,300
Regina.....		122,000	122,000	66,000	44,500	51,500
St. John.....		12,000	80,000	62,000	28,500	26,000
Toronto.....	8,000	512,000	466,000	314,000	358,500	268,800
Vancouver.....	2,000	130,000		60,000	60,500	49,500
Winnipeg.....	8,000	70,000	184,000	70,000	37,500	37,900
	38,300	980,000	1,324,000	1,074,000	950,300	748,500

Worn and mutilated coin withdrawn from circulation:

	Withdrawn		Net Increase in Circulation	
	\$	cts.	\$	cts.
Silver Coin.....	61,522.20		3,354,777.80	
Nickel Coin (mutilated only).....	1,819.55			
Tombac Coin—5 cents.....	292.75			
Steel Coin—5 cents.....	130.00		950,170.00	
Bronze Coin.....	2,565.66		745,934.34	

## GOLD BULLION

Three thousand, four hundred and five deposits of gold bullion were received at the Mint during the year from Canadian Mining Companies, the Dominion of Canada Assay Office, Vancouver, and sundry persons. The gross weight of the deposits amounted to 3,102,991 ounces, containing by assay 2,503,417 ounces fine gold and 357,739 ounces fine silver. The receipts show a decrease as compared with the year 1944 of 548 in the number of deposits, gross weight 434,742 ounces, gold content 358,632 ounces fine and fine silver 28,252 ounces.

The net amount paid by cheque to depositors was \$93,463,407.02. In addition 8,240.056 ounces of fine gold with a statutory value of \$170,337.45 was also issued in payment of gold deposits.

Postage collected for the Postmaster General on deposits shipped by mail, postage collect, amounted to \$10,636.48.

Details of the origin of the bullion deposited at Vancouver and Ottawa are shown in the following table:—

Source	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
From Canadian Mines and Refineries—			
Ontario.....	1,884,507.550	1,522,989.077	208,448.33
Quebec.....	931,929.275	757,420.921	113,985.17
British Columbia.....	127,890.375	103,099.881	18,363.06
Manitoba.....	85,201.375	68,187.783	5,837.86
Yukon.....	39,812.525	31,761.859	6,286.96
Nova Scotia.....	3,495.450	3,293.552	111.75
North West Territories.....	9,850.400	7,198.706	1,644.52
Alberta and Saskatchewan.....	152.180	111.757	9.34
Total from Mines and Refineries...	3,082,839.130	2,494,063.536	354,686.99
From Jewellery and Scrap.....	24,028.680	11,562.800	3,402.05
GRAND TOTAL.....	3,106,867.810	2,505,626.336	358,089.04

A detail of the fine gold issued in the form of trade bars to the Bank of Canada, and granulated, sweep and medals to sundry persons is shown hereunder:

	Ounces Fine
5,964 Trade Bars to Bank of Canada.....	2,385,322.055
Depositors.....	8,240.056
Sales to Manufacturers.....	96,190.551
Proof Plate.....	.500
Medals.....	7.599
Sweep.....	9,402.913
	<hr/> 2,499,163.674 <hr/>

This total shows a decrease of 330,591.326 ounces fine as compared with the year 1944.

# OPERATIVE DEPARTMENT

Superintendent—MR. R. J. EDMUNDS

The following table sets out the coinage production by denominations, and shows an increase of over 38,000,000 in the number of pieces passed for issue in 1945 compared with 1944.

	1944	1945
	Pieces	Pieces
DOMINION OF CANADA		
SILVER (800 fine)—		
1 dollar.....		38,391
50 cents.....	2,460,205	1,959,528
25 cents.....	7,216,237	5,296,495
10 cents.....	9,383,582	10,979,570
STEEL—		
5 cents.....	11,532,784	18,893,216
BRONZE—		
1 cent.....	44,131,216	77,268,591
Canadian Total.....	74,724,024	114,435,791
NEWFOUNDLAND		
	(925 fine)	(800 fine)
SILVER—		
10 cents.....	151,471	175,833
5 cents.....	286,504	203,828
BRONZE—		
1 cent.....	1,328,776	.....
Newfoundland Total.....	1,766,751	379,661
Total Canadian and Newfoundland.....	76,490,775	114,815,452

Work at high pressure by all departments was again necessary this year to keep up with the continued very heavy demands for coin. Overtime work and two shifts were in force throughout the year, with the Press Room operating on three shifts from the middle of August.

The coinage of steel five-cent pieces was discontinued on 31st December, 1945. As the striking of a steel coinage was a war measure to release nickel for more vital purposes, approval was given to again mint the pure nickel five-cent coin commencing 1st January, 1946. It is similar in design, weight and diameter to the nickel coin authorized by Proclamation in 1937, but is to be struck with twelve sides to aid in overcoming any confusion in distinguishing between the five-cent and twenty-five cent coins.

The ten-cent and five-cent coins for Newfoundland were the first coins struck under the "Newfoundland Coinage Order 1944". This Order reduced the standard of fineness of silver coins minted for circulation in Newfoundland from 925 to 800, i.e., 800 parts fine silver and 200 parts copper.

Details of bullion and metals melted, cast into coinage bars, bars rolled, blanks cut and good coins produced in 1945 are summarized in the following table:—

—	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
FOR CANADA	Ozs.	Ozs.	Ozs.	Ozs.
SILVER (800 fine)—				
1 dollar.....	85,065.40	84,524.60	35,896.00	28,836.47
50 cents.....	1,257,340.51	1,054,554.61	563,460.59	734,867.44
25 cents.....	1,710,114.75	1,651,670.00	1,121,002.46	993,917.13
10 cents.....	1,288,182.66	1,284,257.71	850,870.38	820,921.54
Total Silver.....	4,340,703.32	4,075,006.92	2,571,229.43	2,578,542.58
STEEL—	Lbs.	Lbs.	Lbs.	Lbs.
5 cents.....			192,115.00	183,825.26
BRONZE—				
1 cent.....	883,065.50	849,060.37	572,647.66	551,911.47
FOR NEWFOUNDLAND	Ozs.	Ozs.	Ozs.	Ozs.
SILVER (800 fine)—				
10 cents.....				13,089.42
5 cents.....			17,135.45	7,656.58
			17,135.45	20,746.00
	Short Tons	Short Tons	Short Tons	Short Tons
	550.36	564.24	471.12	456.99

### Melting House:

In addition to the 550 tons of coinage bars cast for silver and bronze, there were 148,770 ounces of sterling (925 fine) silver melted and cast into special bars for war service medals and clasps; 28,046 ounces of silver worn and mutilated coin, withdrawn from circulation, cast into 1,000 ounce ingots for standard bars (800 fine) for recoinage purposes; 2,087 pounds of worn and mutilated bronze coin cast into one-cent coinage bars.

Several melting furnaces in the Refinery, through the co-operation of the Refinery Superintendent, were adapted and utilized during the year to assist the Melting House in keeping a steady supply of bars going to the rolling mills. The high frequency electric furnaces were operated on one long shift, from 7.30 A.M. to 9.00 P.M. daily, rather than on a two or three shift schedule, as continuous running without shut-down for cleaning up and weighing-in the work during the day has definitely proven that the output is increased in fewer hours of actually operating this Branch.

### Rolling Room:

The additional work done by the four rolling mills besides rolling and gauging 564 tons of bars and fillets to the thickness for the various denominations of coin, consisted of:—

- (1) 133,791 ounces of sterling silver rolled into fillets for cutting into blanks for war service medals, clasps and bar mounts.
- (2) 9,041 lead discs for the Assay Office.
- (3) 467 ounces of fine silver rolled for 26-grain and 2½-grain discs for the Assay Office.



### Press Room:

The following comparative table, for the years 1944 and 1945, shows the number of dies for all denominations of coin used in the Press Room and also the number of good coins produced from each pair of dies.

Denomi- nation	1944			1945				
	Number of Good Pieces Coined	Number of Dies Used		Number of Pieces per Pair of Dies	Number of Good Pieces Coined	Number of Dies Used		Number of Pieces per Pair of Dies
		Obv.	Rev.			Obv.	Rev.	
Dollar...					38,391	8	12	3,839
50 cents...	2,460,205	127	101	21,581	1,959,528	51	42	42,140
25 cents...	7,216,237	276	282	25,865	5,296,495	104	132	44,886
10 cents...	9,383,582	436	384	22,887	10,979,570	268	204	46,524
5 cents...	11,532,784	348	364	32,395	18,893,216	271	306	65,488
1 cent...	44,131,216	215	174	226,896	77,268,591	129	95	689,898
	74,724,024	1,402	1,305	55,208	114,435,791	831	791	141,105
		2,707				1,622		

Every effort has been made during the last few years to increase the number of coins struck by each die or pair of dies. After much study and research more satisfactory results in lengthened die life are at last being achieved. Careful selection of the most suitable die steel for Mint work; efficient heat-treatment of the steel die in progress and proper hardening and tempering of the finished die; chromium plating the design of all dies; correct annealing of the silver and copper blanks for coinage; and constant training of the press operators, appears responsible for the increase of over 150% in the number of pieces struck per pair of dies. One pair of one-cent dies struck over 5,000,000 coins before being discarded through the wearing away of the design.

There is no doubt that the working dies, prepared under our present heat-treating equipment and using the above-mentioned precautions, would strike a greater number of silver coins if the annealing methods to soften the blanks before striking into coins could be modernized. At present the blanks are placed in iron pots, heated to a cherry red, around 1200 F., in an electric oven, and then plunged into cold water. The energy that is unnecessarily consumed to heat the pots or containers costs as much as the electric power required to heat the blanks within. It is also most difficult to heat the pieces uniformly, as the blanks in the centre cannot absorb the heat as quickly as those nearest the heating element. Although time is allowed for complete saturation or absorption of the heat by the whole body, the method cannot be called efficient, and there are definitely many hard pieces which have not received sufficient annealing, causing excessive breakages of dies in the process of striking.

By the radio frequency generator method of induction heating each work piece is subject to the influence of a varying electro-magnetic field which almost instantaneously uniformly heats each individual blank to the desired temperature. When plunged into cold water, every piece is annealed at the softness required to bring up a satisfactory design, and being uniformly soft the die life is greatly increased.

The cost of installation may be prohibitive at present, but the reduction in electric power costs for operation of the furnace, great savings in amount of steel used and labour saved in the preparation of dies for minting would eventually more than pay for apparatus of such efficiency.

## Die and Medal Department:

The Die Department prepared 1,543 dies, punches and matrices for Canadian coinages, and 180 dies for Newfoundland 10-cents and 5-cents in 1945, compared with 2,857 in 1944.

Forty-six R.C.M.P. Long Service and Good Conduct Medals, mounted with clasp, were struck and issued to the Commissioner of the Royal Canadian Mounted Police. The name of the recipient was engraved on the edge of each medal.

Four Gold medals were struck for the Royal Society of Canada as follows:

- One Flavelle Medal, 14 kt. gold, engraved,  
"Robert Boyd Thompson, 1945";
- One Herbert Marshall Tory Medal, 18 kt. gold, engraved,  
"Otto Maass, 1945";
- One Tyrrell Medal, fine gold, engraved,  
"Fred Landon, 1945";
- One Willet G. Miller Medal, 18 kt. gold, engraved,  
"Morley E. Wilson, 1945".

Four 10 kt. gold medals were struck for the Engineering Institute of Canada as follows:

- One Gzowski Gold Medal, engraved,  
"N. Griesbach, 1944";
- Two Leonard Gold Medals, engraved,  
"James E. Gill, 1944, and  
"Paul E. Auger, 1944";
- One Plummer Gold Medal, engraved,  
"Wilfred Gallay, 1944".

Four Julian C. Smith Medals in Tombac Metal were struck for the Engineering Institute of Canada, engraved,

- (1) E. P. Fetherstonhaugh, 1944;
- (2) John A. Wilson, 1944;
- (3) George A. Walkem, 1945;
- (4) Alexander J. Grant, 1945.

One Sir John Kennedy Medal in Tombac was also struck for the Engineering Institute engraved,

"John M. R. Fairbairn, 1945".

The order for 7,000 Efficiency Medals and 500 Long Service and Good Conduct Medals was completed on behalf of the Department of National Defence late in the year.

The members of the Committee which had been appointed by the Minister of National Defence to select the designs for the obverse and reverse of the new Canadian Volunteer Service Medals made their decision, and the general designs were approved by His Majesty the King.

The Mint was requested to undertake the complete manufacture of these medals. At a meeting of representatives of the Department of National Defence, and of the Mint, in the office of the Assistant Deputy Minister of Finance in August, 1945, this request was tentatively agreed upon if there would be no interference with essential production of coin. Enquiries were to be made by Mint officers concerning availability of machinery for this special type of work, as an adjunct to the regular minting equipment.

The manufacture of medals in the great numbers that will probably be required for the various awards to the Armed Services will present a task of unprecedented scale to any plant that may undertake the work. Minting machinery, heavy rolling mills, blank cutting machines and striking presses, are ideal for medal work. Practically all the war and service medals of the British Empire have been made by or under the supervision of the Royal Mint, London, for the past one hundred and fifty years. It is but following precedent to establish a Medal Unit at this Mint to manufacture Service Medals for the Armed Forces of our own Dominion.

The processes of medal making comprise thirty to forty separate operations to produce a complete medal, from the pouring of the molten metal to the ribboned decoration. Many machines are made use of, and tools designed, quite distinct from those used in the process of coining.

Machinery and equipment suitable for medal work have been inspected at a number of munition plants now being dismantled, and were purchased from the War Assets Corporation. After six years of strenuous work on munitions these machines have had to be overhauled and repaired, then adapted to fit the tools and parts necessary for fine medallic work.

Every effort is being made to create a model plant for the manufacture of medals, in which each worker, over 90% of those now employed having seen service overseas with some branch of the Armed Forces, will be able to devote his skill in the craftsmanship and art of medal making under the most ideal working conditions, in healthy and comfortable surroundings. The design of the whole plant has been influenced by certain physical and psychological factors in colour scheme and floor-plan, which are now recognized as a major consideration in relieving physical fatigue, eye strain, accidents, absenteeism and morale. Naturally if this can be achieved more efficient production will result.

The Mint Engraver is engraving the designs of both the obverse and reverse master dies of the Canadian Volunteer Service Medal. The dies are being cut directly in the steel by hand from the approved sketches.

It cannot be emphasized too strongly the great value of having a highly skilled Engraver at the Mint at this time. The practice since the turn of the century in Mints renowned in medallurgy has been to have the suggested design drawn or sketched by an artist, modelled by a sculptor on a large scale, engraved by the pantograph or reducing machine, cutting the steel master die automatically exactly the size and design of the medal required. Previous experience here in producing medal dies by this method has meant over a year's delay in most cases, and considerable expenditure before a medal is struck.

Although siderography or hand die-cutting in steel is extremely arduous, and is becoming a lost art, in the absence of a pantograph machine at this Mint, it is of great advantage to have not only a sculptor but a medallist possessing the eye and skill of the old engravers. In the first place, much time and money is saved, in the second, and more important indeed, are the facilities provided to the artist and committee responsible for the design to keep in the closest touch with the Engraver as the work proceeds through the various stages towards what should be the creation of a medal of artistic merit, worthy of the occasion, and which may be considered symbolical of our time.

Addison, in his "Dialogues upon the usefulness of medals" published in 1726, observes "We ought to look on medals as so many monuments consigned over to Eternity, that may possibly last when all other memorials of the same age are worn out or lost", and pleads that medals shall represent the dress and customs of the time of their issue.



Additional work under the immediate supervision of the Engraver is the designing and machining of tools, jigs, chucks, punches and beds of the many intricate shapes and sizes required to cut, mill, swage, file and grip the medals and clasps during the various processes. Many labour-saving devices have already been discovered and are being instituted to speed up production.

### **Mechanical and Electrical Branch:**

The work performed by these two departments continued to be unusually heavy throughout the year. Several skilled mechanics, who had gained a wide experience in the different branches of the Armed Services, have been taken on to assist in the overhaul, repair and installation of the used machinery, purchased from War Assets Corporation, to be in readiness for the new Medal Unit, and to make new and spare parts for medal manufacture.

To avoid any great interference with the production of coin, the coining presses are being overhauled one by one, repairs made and worn out parts renewed. New tables, fingers, knuckles, bearings, have been made in our own shops to replace the old ones. The presses have been in operation thirty-eight years, during the last six years under particularly hard continuous service. When taken down for repair many faults appear which have to be attended to before the press can be expected to operate efficiently.

An improvement was made on No. 6 coining press to act as a safety device and eliminate accidents when feeding individual blanks to the dies by hand in order to strike only one blow at a time. A second starting lever was placed at the left side, as well as the one on the right side. The two levers make it necessary to remove both hands well away from the active part of the press in order to lift upward the starting levers which actuate the machine to strike a powerful blow.

A new block, or the bolster slide which holds the bottom die in position on No. 6 coining press, was made with an improved change in the ejector gear. A similar arrangement is now an integral part of all the coining presses made by Messrs. Taylor & Challen to enable the new presses to run at a considerably higher speed, and also to overcome displacement of the blank or partly finished coin or medal when subsequent blows are applied. Ordinarily the bottom die is lifted twice, once on the forward movement and once on the backward stroke of the slides. Only one upward motion to eject the coin is necessary. This device eliminates the second lift or any movement of the bottom die after the piece is placed upon it by the feed fingers in the space in the collar left when the bottom die has fallen. The single lift feature is arranged by replacing the solid lifts by two pivoted pawls which revolve about one-eighth to one-quarter turn on their pivots pressing against helical springs and push bars, allowing the lift to remain inoperative on the outward stroke of the slides. On the return or "in" motion the pawls strike the perpendicular shoulder of the block, cause the lift effect to take place when passing over the cam, raise the block and die which ejects the finished coin.

It is but fitting to express satisfaction and appreciation of the manner in which the Artificers and Electrical Staff have performed their work, and the ready willingness and technical proficiency with which they have met every pressing and sudden demand made upon them in order to maintain the many types of minting machinery and electrical equipment at that high state of efficiency essential to the successful operation of the whole Mint.

### **Miscellaneous:**

A report dealing with the year in which hostilities ceased might well include a review of the exceptional activities at the Mint during the period of World War II, from 1940 to 1945.

The production of coin for the six years of war reached the enormous and unprecedented figure of over 650,000,000 pieces; 125,000,000 more than were struck during the thirty-one years of operations from 1908 to 1939, when 525,000,000 coins were produced.

Three thousand, six hundred and twenty-five tons of silver bullion and bronze metal were melted and cast into coinage bars of all denominations.

The phenomenal heavy demands for Canadian metallic currency kept the staff and machinery at full pressure during the entire period, compelling recourse to the expedient of running the plant and machinery for double and treble the normal daily hours, with separate staffs working in two and three shifts, as well as long hours of overtime in some departments where internal economy arrangements proved more efficient and productive.

Urgent measures to alleviate emergent conditions necessitated the engagement of hundreds of temporary apprentices and craftsmen, imposing a severe strain and heavy responsibility upon the directing staff of officers and foremen, and the dilution of the permanent experienced staff of Mint craftsmen, barely sufficient in numbers for one shift only, now spread over two or three shifts, among the new recruits for training and instructing them in the various processes of minting. Considerable credit is due to the older and permanent staff of craftsmen that so few delays and breakdowns were experienced while the newer temporaries were being trained to operate not only heavy and powerful machines, but also delicate and intricate apparatus.

Expansion of plant and the installation of new machinery and equipment taxed an already congested floor space, and required much rearrangement of existing equipment.

Some important installations that have justified their purchase by increasing production or reducing costs, or both, include:—the manufacture in our own Shops of many electric furnaces and ovens, for heating crucibles, moulds, and annealing dies, coinage bars and blanks; the purchase of a powerful rolling mill with 14" X 16" rolls; a 250-ton coining and medal striking press; die-hardening and steel heat-treatment electric furnaces; the high-frequency electric-melting furnaces replacing the oil-fired burner method of melting silver bullion and bronze metals; a planchet edging machine to mark the edge of the blanks; a ball mill for the grinding of sweeps; an oxygen-acetylene combination cutting and welding outfit; an electric welder; and a larger capacity centrifugal blank and coin drying machine replacing the saw-dust drying method. Two tool-room lathes, one universal milling machine, one profiling machine, one tool and cutter grinder, one grinder for 5-cent dies, were all taken over from surplus War Assets Corporation material to increase the Mint Machine Shop output. In the Medal Branch there were twenty small medal skimming lathes set up, fourteen bench and pedestal drills, three power punch presses for trimming clasps, one swaging press, one arbor press, one spinning riveter, seven buffing and polishing machines, and many other small parts taken over from dismantled munition plants.

After thirty-five years' service the original motors throughout the plant began giving trouble. The insulation had perished or burned out in many cases. No motors were readily available throughout the war years, but the present equipment was kept going by rewinding coils and parts for armatures and rotors in our own electrical branch with resultant savings of hundreds of dollars. Where feasible, countershaft drives were removed and replacement made by direct electric drive to operate various machines. Not only was less space taken up but the same or more work was done at less cost.



The number of motors, motor-generators and electrical equipment has been greatly expanded, with no less than a hundred and fifty motors from  $\frac{1}{4}$  H.P. to 250 H.P. now working, using both direct and alternating current at 110, 220, 550 and 800 volts at 60 to 960 cycles.

Work on munitions was also undertaken during the war years on behalf of the British Admiralty Technical Mission. 325,000 Pressure Plates for the Percussion Fuze of 15-inch shells were manufactured and struck on the coining presses. Each Pressure Plate required thirty-two treatments, including six forming blows on the presses. Special dies, tools and gauges of intricate and precise design, accurate to 1/10,000th of an inch were made in our own shops. The finished pieces were tested and passed by the Inspection Branch of the British Admiralty Technical Mission, found to be according to specifications, and delivery made without delay in the despatch of this important component part.

Substitute coinage to replace the nickel 5-cent coin had to be evolved in 1942 owing to the restrictions placed upon the use of nickel for other than war purposes. In an effort to cope with the necessity of keeping 5-cent coins in plentiful supply as a circulating medium, a mixture of copper and zinc was tried in an alloy known as tombac metal. These metals appeared to be the only coinage metals readily at hand, and a tombac coin had a precedent in the 12-sided three-penny piece struck in England. The new coin tarnished rapidly, and turning dark in colour caused considerable confusion with the one-cent in making change. The bright steel coin in chromium finish was designed as soon as arrangements could be made for the rolling and plating of the steel strips, and was struck for two years of the war.

Extra work in the Die and Medal Branch in addition to the preparation of over 14,400 matrices, punches and dies for coinage purposes, included:—engraving of the Privy Seal and also one Special Seal with the Arms of the Governor General the Earl of Athlone, engraving of dies for the Willett G. Miller Gold Medal on behalf of the Royal Society of Canada, engraving of dies for the Henry Marshall Tory Gold Medal awarded by the Royal Society of Canada, a reverse die for the 5-cent coin with the "V and Torch" design, engraving of the reverse design for the "Canada" medal, engraving of dies for the Canada-Brasil medal, preparation of medal dies and engraving of dies for the clasps of the Efficiency Medal, and Long Service and Good Conduct Medal, striking of gold medals of various finenesses for the Royal Society of Canada and the Engineering Institute of Canada, striking of 259 fine silver medals for Long Service and Good Conduct in the Royal Canadian Mounted Police, also striking 7,500 Efficiency medals and Good Conduct and Long Service medals in sterling silver for the Department of National Defence. Many dies for Newfoundland coinages were also made, and steel signature die-blocks in reverse were engraved with the names of signing officers for various Branches of the Government Service as required.

Scrap material, iron and steel, lead, copper, clothing and paper have been carefully salvaged throughout the War period and disposed of through the proper departmental service.

Every effort has been made to cut down wastage, reduce hazards, and institute safety devices. Through the co-operation of the staff gratifying results have been achieved.

# ASSAY OFFICE

Assistant Chemist and Assayer—W. A. HAWKEY, A.C.S.M.; Assoc. INST. M.M.

The number of assays made in the Department from the 1st January to the 31st December, 1945, was as follows:—

GOLD—		
Refinages.....	4,430	
Rough Gold.....	16,797	
Proofs.....	2,030	
Parting Proofs.....	678	
Parting Buttons.....	6,452	
Miscellaneous.....	728	
		31,115
SILVER—		
Canadian Coinage		
Standard Bars.....	3,738	
Pyx.....	1,497	
Newfoundland Coinage		
Pyx.....	15	
Proofs.....	1,077	
Fine Silver Ingots.....	650	
Medal Bars.....	136	
Worn Coin Ingots.....	62	
Miscellaneous.....	39	
		7,214
MISCELLANEOUS—		
Mint Residues (Sweeps, etc.).....	356	
For the Marking Act		
Inspector.....	111	
Suspected Counterfeit coins.....	22	
Commercial Assays.....	29	
		518
Making a Total of.....		38,847

The mean finenesses of Canadian Coinage struck during 1945 were as follows:—

Denomination	Standard Fineness	Mean Fineness
1 Dollar.....	800.0	799.44
50 cents.....	800.0	799.20
25 cents.....	800.0	799.24
10 cents.....	800.0	799.55

The mean finenesses of the coins struck for the Government of Newfoundland are shown below:—

Denomination	Standard Fineness	Mean Fineness
10 cents.....	800.0	800.52
5 cents.....	800.0	799.81

During the year under review 3,405 deposits were received at the Mint. Of these 3,302 came directly from the depositors while the remaining 103 were from the Dominion Assay Office at Vancouver.

The gross weight of bullion received was 3,102,991·020 ounces comprised of the following:—

FINE GOLD—

327 deposits weighing 652,938·700 oz., which, having a mean fineness of 997·190, required no further refining.

CRUDE BULLION—

2,739 deposits; 2,371,836·350 ozs. of an average fineness of 757·278 gold, 156·020 silver and containing 8·6702% base metal.

SCRAP (Jewellery and Dental)—

236 deposits weighing 20,979·450 ozs. with an average fineness of 488·663 gold and 144·814 silver.

FROM VANCOUVER ASSAY OFFICE—

57,236·520 ozs. gross at 802·316 gold and 148·747 silver.

One fine gold working trial plate was made and fixed against our special standard.

A total of sixteen ounces of silver and one-half ounce of gold trial plate was sold.

A number of medals struck in the Operative Department were electrolytically plated with fine gold.

Several suspected counterfeit coins were examined and, where necessary, assayed.

While no nickel coins were struck during the year, the first consignment of nickel blanks for the 1946 issue was received and on examination these were found to comply with the specifications.

## REFINERY

Superintendent—MR. P. W. BOND

During the year ended 31st December, 3,302 deposits were received from mines and miscellaneous depositors and 103 deposits from the Dominion of Canada Assay Office, containing in all 2,503,417 ounces of fine gold and 357,739 ounces of fine silver.

Five thousand, nine hundred and eighty-nine fine gold trade bars with a gross weight of 2,401,510 ounces containing 2,395,097 ounces of fine gold at an average assay of 997·33; granulated gold with a gross weight of 108,849 ounces containing 108,828 ounces of fine gold at an average assay of 999·81; silver bars with a gross weight of 334,483 ounces containing 334,237 ounces of fine silver at an average assay of 999·26 and granulated silver with a gross weight of 2,197 ounces containing 2,196 ounces of fine silver at an average assay of 999·5 were delivered to the Mint Office.

Granulated gold weighing 522 ounces fine; worn silver coin weighing 10 ounces fine; silver medal scrap weighing 6 ounces fine and granulated silver weighing 923 ounces fine were received from the Mint Office.

One hundred and fifty-two thousand, two hundred and seventy-seven ounces of the total amount of deposits received were remelted and 4,926 ounces toughened before uniform assays could be obtained.

Sweep amounting to 37·551 tons was recovered, ground, barrelled, sampled and assayed and contained 8,970 ounces of fine gold and 38,452 ounces of fine silver, and sweeps containing 9,670 ounces of fine gold and 49,364 ounces of fine silver were delivered to the Mint Office.

Three hundred and thirty-four thousand, two hundred and thirty-seven ounces of fine silver bars and 2,196 ounces of granulated fine silver were produced from the treatment of 701,721 ounces of base and silver chloride.

# DOMINION OF CANADA ASSAY OFFICE, VANCOUVER, B.C.

Manager—MR. G. N. FORD

Disbursements for the purchase of gold bullion during the year 1945 amounted to \$1,835,799.67, as against \$1,436,665.86 during the preceding year, an increase of \$399,133.81.

The following table gives particulars as to source, weights etc. of deposits:—

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territory.....	179	39,749.25	31,719.225	6,280.94
British Columbia.....	212	18,173.15	14,996.860	2,060.36
Alberta.....	3	141.68	104.205	8.67
Jewellery and Dental Scrap.....	105	3,049.23	1,310.910	573.73
1945.....	499	61,113.31	48,131.200	8,923.70
(1944).....	577	48,983.87	37,679.028	7,649.55

Although a further decrease is shown in the number of deposits during the past year, as compared with 1944, the gross weight and fine gold content show an increase.

Since 1939 there has been a decline each year in the volume of gold deposited at this office, particularly noticeable since 1943 inclusive, when priority was given to base metals required for war purposes.

With the change-over to peacetime activities, the year upon which we have just entered should show an appreciable increase in placer and lode gold production in British Columbia and of placer gold in the Yukon Territory.

The principal shipper of gold to this office for many years, the Yukon Consolidated Gold Corporation Ltd., Dawson, Y.T., operated 3 dredges during 1945, with an output of just over \$900,000.00 in value. This year the company is planning to place 6 dredges in operation, with an estimated value of production amounting to approximately \$1,500,000.00.

Other placer Operators in the Territory, including Clear Creek Placers Ltd., expect quite an increased production.

## GENERAL

The Mint suffered the loss of a valued member of the Staff in the sudden passing on 29th April, 1945, of Mr. Albert Lucas Entwistle, F.R.I.C., M.I.M.M., Chief Chemist and Assayer. The late Mr. Entwistle was appointed to the Ottawa Branch of the Royal Mint on 13th December, 1907, as Assistant Assayer and was promoted to the position of Assayer of the Mint in 1922. When the Mint was taken over by the Canadian Government, in 1931, Mr. Entwistle was appointed Chief Chemist and Assayer and he served in this capacity until the day of his decease.

The annual stocktaking and inspection of the store of bullion and coin, as required by the Act establishing the Royal Canadian Mint, was conducted by the officers of the Auditor General's Department in March.



The Assay Commissioners, Dr. J. D. Babbit of the Division of Physics and Electrical Engineering, National Research Council, Mr. R. W. Hoff of the Division of Chemistry, National Research Council, and Mr. R. J. Traill of the Metallic Minerals Division of the Bureau of Mines, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1944 have been minted in accordance with the provisions of the said Act, were sworn in by His Honour, Judge A. G. McDougall, and in the presence of Dr. A. K. Eaton, Taxation Investigator, as representative of the Department of Finance on the 1st day of May, 1945.

The findings of the Assay Commissioners indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act.

In January 1940 there were 132 Officers, foremen and craftsmen, permanent and temporary employees on the Mint Staff, compared with 229 on December 31, 1945.

Over fifty members of the Staff served with the Armed Forces during the war.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada since 1858.

I am, Sir,

Your obedient Servant,

A. P. WILLIAMS,  
For the Master, Royal Canadian Mint



## APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1908, to its disestablishment on the 30th November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1945.

Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	Statutory Value Coin and Bullion
	Ounces	\$	\$	Ounces Fine	\$
1908 to 1936.....	53,910,494.021	910,817,142.05	7,923,878.73	43,634,524.862	909,929,557.75
1937.....	4,959,970.893	81,311,693.73	.....	3,937,910.698	81,403,837.11
1938.....	5,601,260.642	90,920,063.13	.....	4,308,067.369	89,055,654.13
1939.....	6,181,336.290	100,656,105.55	.....	4,834,214.285	99,932,075.82
1940.....	6,295,218.554	103,169,970.38	30.00	5,026,792.728	103,913,055.43
1941.....	6,444,056.215	105,273,560.67	.....	5,134,347.805	106,136,385.78
1942.....	5,761,045.973	95,338,135.90	.....	4,611,892.227	95,336,270.79
1943.....	4,456,437.559	74,769,168.35	.....	3,645,739.964	75,364,131.92
1944.....	3,537,734.636	59,163,794.79	.....	2,829,755.000	58,496,226.17
1945.....	3,102,991.020	51,750,218.87	.....	2,499,163.674	51,662,297.22
	100,250,545.803	1,673,169,853.42	7,923,908.73	80,462,408.612	1,671,229,492.12

# APPENDIX B COIN ISSUED IN CANADA

		SILVER										NICKEL	TOMBAC	STEEL	BRONZE				
		Dollar \$	50c. \$	25c. \$	20c. \$	10c. \$	5c. \$	Total Silver \$	5c. \$	1c. \$	½c. \$								
1858 to 1907	New Brunswick, 1861, 2 and 4,				60,000	25,000	10,000	95,000		20,000	1,114								
	Nova Scotia, 1861, 2 and 4,									26,000	4,000								
	Prince Edward Island, 1871									10,000									
	Rest of Canada, 1858-1907		1,249,018	5,094,978	150,000	3,040,000	2,926,000	12,459,996		803,315									
	Totals.....		1,249,018	5,094,978	210,000	3,065,000	2,936,000	12,554,996		859,315	5,114								
		GOLD																	
1908 to 1945	Sovereigns	£	\$10	\$5															
			\$	\$															
	1908	627,834	3,480,360	1,388,060	734,220	2,737,900	9,982,425	6,526,144	3,084,802	23,065,491	2,656,100				2,070,606				
	1936				210,900	96,000	711,900	273,400		1,322,200	251,100				105,400				
	1937				90,000	96,000	782,000	408,000		1,376,000	153,500				184,300				
	1938					144,000	867,400	561,900		2,794,032	321,000				214,600				
	1939						968,000	2,343,000	1,531,000	4,845,000	660,500				822,800				
	1940		20			842,000	1,718,000	974,000		3,534,000	454,000				575,300				
	1941					1,022,000	1,708,000	1,034,000		3,764,000	351,575.50				783,500				
	1942					1,564,000	3,402,000	2,073,000		7,044,000					881,300				
	1943					1,230,000	1,818,000	953,000		4,006,000					454,600				
	1944					980,000	1,324,000	1,074,000		3,416,300					748,500				
1945					38,300														
		627,834	3,480,380	1,388,070	2,324,152	10,928,918	29,751,793	210,000	18,486,444	6,020,802	67,722,019	4,857,775.50	1,407,824.50	1,521,300	7,730,221	5,114			

\* Of this amount \$15,000 returned in 1940.

† This coin struck in 1943.



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DEPARTMENT OF FINANCE

# ROYAL CANADIAN MINT

Report  
For Calendar Year  
1946

OTTAWA  
EDMOND CLOUTIER, C.M.G., B.A., L.Ph.,  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
CONTROLLER OF STATIONERY  
1947







Government  
Publications

DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year  
1946

Published by Authority of Hon. D. C. ABBOTT, M.P.,  
Minister of Finance

OTTAWA  
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1947



# ROYAL CANADIAN MINT

OTTAWA, 31st March, 1947.

The Honourable,  
The Minister of Finance,  
Ottawa, Ontario.

SIR:

I have the honour to submit the following report on the operations of the Royal Canadian Mint during the calendar year 1946.

## COINAGE

There was a decrease of \$2,594,100 in the amount of coin issued during 1946 as compared with the previous year. A detailed statement of the issues by denominations for the years 1945 and 1946 is set out below:—

Denomination	Coin issued in	
	1945	1946
	\$	\$
SILVER COIN—		
1 dollar.....	38,300.00	91,000.00
50 cents.....	980,000.00	400,000.00
25 cents.....	1,324,000.00	556,000.00
10 cents.....	1,074,000.00	654,000.00
Total Silver.....	3,416,300.00	1,701,000.00
NICKEL COIN—		
5 cents.....		291,500.00
STEEL COIN—		
5 cents.....	950,300.00	
BRONZE COIN—		
1 cent.....	748,500.00	528,500.00
Total.....	5,115,100.00	2,521,000.00
Representing.....	Number of pieces	
	111,890,300	68,335,000

Distribution of the coin issued to the various Agencies of the Bank of Canada was as follows:

	Silver				Nickel	Bronze
	Dollar	50 cents	25 cents	10 cents	5 cents	1 cent
	\$	\$	\$	\$	\$	\$
Calgary.....	2,000	10,000	28,000	40,000	40,000	38,300
Charlottetown.....		8,000	28,000	14,000	3,500	6,500
Halifax.....	4,000	50,000	76,000	54,000	28,000	26,000
Montreal.....	16,000	6,000	92,000	122,000	49,000	111,000
Ottawa.....	13,000	6,000	66,000	20,000	12,000	12,100
Regina.....	4,000	94,000	38,000	58,000	33,000	43,000
Saint John.....	2,000	2,000	34,000	28,000	11,000	25,500
Toronto.....	42,000	188,000	144,000	230,000	70,000	189,600
Vancouver.....	2,000	36,000		34,000	42,000	35,500
Winnipeg.....	6,000		50,000	54,000	3,000	41,000
	91,000	400,000	556,000	654,000	291,500	528,500



## Worn and mutilated coin withdrawn from circulation:

	Withdrawn	Net Increase in Circulation
	\$	\$
Silver Coin.....	84,040.45	1,616,959.55
Nickel Coin—5 cents (mutilated only).....	1,634.15	289,865.85
Tombac Coin—5 cents.....	251,670.15	.....
Steel Coin—5 cents.....	320.75	.....
Bronze Coin.....	3,216.28	525,283.72

## GOLD BULLION

Three thousand, five hundred and seventy-six deposits of gold bullion were received at the Mint during the year from Canadian Mining Companies, the Dominion of Canada Assay Office, Vancouver, and sundry persons. The gross weight of the deposits amounted to 3,271,246 ounces, containing by assay 2,652,245 ounces fine gold and 372,595 ounces fine silver. The receipts show an increase as compared with the year 1945 of 171 in the number of deposits, gross weight 168,255 ounces, gold content 148,828 ounces fine and fine silver 14,856 ounces.

The net amount paid by cheque to depositors was \$94,662,727.75. In addition 14,521.432 ounces of fine gold with a statutory value of \$300,184.74 was also issued in payment of gold deposits.

Postage collected for the Postmaster General on deposits shipped by mail, postage collect, amounted to \$10,671.52.

Details of the origin of the bullion deposited at Vancouver and Ottawa are shown in the following table:—

Source	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
From Canadian Mines and Refineries—			
Ontario.....	2,088,834.000	1,699,440.377	237,409.80
Quebec.....	850,325.800	700,867.647	93,275.29
British Columbia.....	108,655.105	87,683.119	14,703.67
Manitoba.....	94,030.900	75,575.704	6,523.98
Yukon.....	56,440.940	45,282.908	9,416.94
Nova Scotia.....	4,670.200	4,320.912	144.32
North West Territories.....	30,068.400	21,119.923	5,793.21
Alberta and Saskatchewan.....	146.640	110.825	12.90
Total from Mines and Refineries...	3,233,171.985	2,634,401.415	367,280.11
From Jewellery and Scrap.....	41,310.430	19,221.236	5,675.18
GRAND TOTAL.....	3,274,482.415	2,653,622.651	372,955.29

A detail of the fine gold issued in the form of trade bars to the Bank of Canada, and granulated, sweep and medals to sundry persons is shown hereunder:—

	Ounces Fine
6,304 Trade Bars to Bank of Canada.....	2,522,853.880
Depositors.....	14,521.432
Sales to Manufacturers.....	119,044.048
Proof Plate.....	1.500
Medals.....	5.443
Sweep.....	9,538.460
	<hr/> 2,665,964.763 <hr/>

This total shows an increase of 166,801.089 ounces fine as compared with the year 1945.

## OPERATIVE DEPARTMENT

Superintendent—Mr. R. J. EDMUNDS

The productive capacity of the coining division was again extended during the year 1946 when a total of 73,168,921 coins of all denominations were passed for issue. Although the demands for Canadian metallic currency were considerably less than in 1945, as shown in the comparative table below, they were, however, greatly in excess of any pre-war year.

### COINAGE

	1945	1946
	Pieces	Pieces
DOMINION OF CANADA		
SILVER (800 fine)—		
1 dollar.....	38,391	93,055
50 cents.....	1,959,528	950,235
25 cents.....	5,296,495	2,210,810
10 cents.....	10,979,570	6,300,066
NICKEL—		
5 cents.....	18,893,216	6,952,684
BRONZE—		
1 cent.....	77,268,591	56,662,071
Canadian Total.....	114,435,791	73,168,921
NEWFOUNDLAND		
SILVER (800 fine)—		
10 cents.....	175,833	
5 cents.....	203,828	
	379,661	
Total Canadian and Newfoundland.....	114,815,452	73,168,921

In addition to the above outturn of coins, there were over 150,000 sterling silver medals struck for the Armed Forces of World War II; 240,000 clasps and 40,000 overseas bar mounts to the Canadian Volunteer Service Medals, on account of the order for 1,183,000 Canadian Volunteer Service Medals required as awards to be given by the Department of National Defence.

As these medals and clasps had to be struck two blows at one hundred tons on the larger coining presses, adapted for medals, this work was done when the presses were available either after the regular day shift or after coinage demands had been met.

Details of the preliminary operations in the Melting House, Rolling, Cutting and Annealing Rooms, necessary to the production of the finished coins, medals and clasps, mentioned in the foregoing table, are summarized in the following statements:—

#### COINAGE

—	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Ozs.
SILVER (800 fine)—				
1 dollar.....	264,277.90	248,580.30	115,174.45	69,855.45
50 cents.....	614,299.60	573,703.80	367,495.68	356,195.56
25 cents.....	822,351.90	585,373.60	387,968.62	414,657.79
10 cents.....	766,242.40	795,991.16	506,701.68	471,656.24
Total Silver.....	2,467,171.80	2,203,648.86	1,377,340.43	1,312,365.04
	Lbs.	Lbs.	Lbs.	Lbs.
NICKEL—				
5 cents.....				69,656.98
BRONZE—				
1 cent.....	657,726.30	649,735.21	441,504.00	404,544.00
	Short Tons	Short Tons	Short Tons	Short Tons
	413.4	400.5	267.9	282.1

#### MEDALS

—	Bars Cast	Bars Rolled	Blanks Cut	Finished Medals
	Ozs.	Ozs.	Ozs.	Ozs.
SILVER (925 fine)—				
Canadian Volunteer Service Medals.....	1,243,703.60	1,210,889.70	443,770.21	162,284.00
Clasps.....	65,319.85	65,319.85	52,255.88	
Overseas Bars.....	8,115.25	8,115.25	6,492.22	
	1,317,138.70	1,284,324.80	502,518.31	165,240.00
Canadian Efficiency Medals.....				1,419.00
2nd Award Bars.....				30.00
Canada Medals.....				386.85
Totals.....	1,317,138.70	1,284,324.80	502,518.31	167,075.85
	Short Tons	Short Tons	Short Tons	Short Tons
	45.2	44.0	17.2	5.7

## Melting House:

Other melting work done consisted of 73,307 ounces of worn and mutilated silver coins withdrawn from circulation, which were cast into ingots for assay purposes, and later converted into 800 standard coinage bars.

Worn and mutilated bronze one-cent coin amounting to 3,845 pounds, and 1,288,000 five-cent tombac coins weighing 12,880 pounds, which had been withdrawn from circulation, were also melted and cast into one-cent coinage bars. One thousand, three hundred and twenty pounds of tin alloy were cast into working slabs.

Special work for the National War Finance Committee required the casting of over 2,500 pounds of bronze into bars  $3\frac{1}{2}$ " wide by  $\frac{3}{4}$ " thick.

## Rolling Room:

Additional work performed in the Rolling Room besides rolling and gauging 444.5 tons of bars and fillets to the thickness of the various denominations of coins, and for the medals and clasps, consisted of rolling to gauge the following:

- (1) 500 ounces of fine silver for 26 grain and 10 grain discs for the Assay Office;
- (2) 120 ounces fine gold proof plate;
- (3) 1,465 pounds of lead bars, for the production of 63,000 lead discs for the Assay Office;
- (4) 2,500 pounds of bronze bars for the National War Finance Committee Medallions.

## Press Room:

The number of coins struck from each pair of dies, as well as the average production for 1945 and 1946 is shown in the following comparative table:

Denomi- nation	1945				1946				
	Number of Good Pieces Coined	Number of Dies Used		Pieces per Pair of Dies	Number of Good Pieces Coined	Number of Dies Used		Pieces per Pair of Dies	
		Obs.	Rev.			Obv.	Rev.		
Dollar...	38,391	8	12	3,839	93,055	48	35	2,215	
50 cents...	1,959,528	51	42	42,140	950,235	24	30	35,194	
25 cents...	5,296,495	104	132	44,886	2,210,810	46	78	35,658	
10 cents...	10,979,570	268	204	46,524	6,300,066	193	169	34,807	
5 cents...	18,893,216	271	306	65,488	6,952,684	75	84	86,909	
1 cent...	77,268,591	129	95	689,898	56,662,071	200	168	307,946	
	114,435,791	831	791	141,105 average	73,168,921	586	564	127,250 average	
		1,622				1,150			

The first impression of the Canadian Volunteer Service Medal was given on the 250-ton coining press at the rate of 7,000 medals during two shifts.

Three coining presses were adapted for the Canadian Volunteer Service Medal to strike the second impression. They were used only when the presses could be spared from coinage work. As the medal has to be carefully locked into the design to strike the second blow, each medal is fed individually into the collar and between the dies to ensure a perfectly struck medal. Production of 5,000 medals daily on these three presses could be maintained if coinage demands permitted.





PLATE I



PLATE II



The two 500-ton friction medal presses were also put into operation on a third blow when necessary to redeem all medals which had been poorly struck previously.

### Die and Medal Branch:

The Die Room prepared 1,096 punches, matrices and dies for Canadian coinages, 120 dies for Newfoundland coinage, 350 dies for the Canadian Volunteer Service Medals, 30 dies for clasps and 10 dies for overseas bar mounts to the C.V.S.M.

Two master dies were engraved direct in the steel by the Mint Engraver for the Canadian Volunteer Service Medal. The obverse die was engraved with the Coat of Arms of the Dominion of Canada. The reverse die portrays a group of marching figures representing the male and female services of the Navy, Army, Air Force, and Nursing Service, in which is depicted the precision style of marching on parade developed during World War II. The latter was engraved from a sketch by Major C. F. Comfort of the Canadian Army. (Plate II.)

A master die for the clasp attachment, and one for the overseas bar to the Canadian Volunteer Service Medal were also engraved by the Mint Engraver.

A new die was also made for sealing coin bags, and another to impress the Mint crest and date on fine gold bars produced at the Mint.

Two pairs of 3" diameter dies were engraved by hand by the Mint Engraver to strike special medallions for the National War Finance Committee.

At the request of the Secretary of State the Privy Seal of the Governor-General of Canada was hand engraved by the Mint Engraver with His Excellency's Coat-of-Arms and the inscription HAROLD RUPERT LEOFRIC. GEORGE VISCOUNT ALEXANDER OF TUNIS. (Plate I.) The counterpart was also supplied.

One special seal without the inscription was also engraved for His Excellency the Governor-General.

Thirteen R.C.M.P. Long Service and Good Conduct fine silver medals, each mounted with clasp and ribbon, were issued to the Commissioner of the Royal Canadian Mounted Police. The name of the recipient was engraved on the edge of each medal.

Three gold medals were struck for the Royal Society of Canada, engraved with the recipient's name, as follows:—

- One Flavelle Medal, 14 kt. gold,  
"William Rowan, 1946",
- One Henry Marshall Tory Medal, 18 kt. gold,  
"John Stuart Foster, 1946",
- One Tyrrell Medal, fine gold,  
"A. L. Burt, 1946".

Two 10 kt. gold medals were issued to the Engineering Institute of Canada engraved as follows:—

- One Leonard Medal,  
"E. Cecil Roper, 1945",
- One Gzowski Medal,  
"John T. Dymont, 1945".

Nine hundred and fifty-five bronze medallions, 3" in diameter, were struck and toned for the National War Finance Committee. These medallions were engraved with either an English or French description as required. The metallic

contents were salvaged from Canadian Naval, Army and Air equipment in use during World War II, 1939-1945.

One thousand, two hundred and ninety Efficiency Medals were struck on behalf of the Department of National Defence, and 500 bars as second awards to the Efficiency Medals.

During the year the new medal unit was completely equipped with sufficient machinery and shaping tools to produce the required quota of 2,000 finished Canadian Volunteer Service Medals daily.

In the process of manufacture numerous difficult problems were met and dealt with and it was found possible to improve our methods by introducing many labour-saving devices and more efficient tools and jigs to suit the various new and unique operations. By so doing the output of assembled medals ready to ribbon and pack in their individual boxes can now be maintained, if necessary, at over 5,000 medals per day of one shift.

A considerable saving was effected by changing the method of finishing the clasps and overseas bar mounts. At first each clasp was filed by hand to remove the surplus metal left after trimming. Three small bench milling machines were installed, and by the use of high-speed milling cutters especially made to fit the design, the output was increased ten-fold with less labour.

Individual polishing of each clasp and bar on buffing machines was also discarded for the more rapid process of burnishing "en masse". By this method many hundreds of small parts are polished in a few minutes in rumbling barrels containing steel-burnishing balls revolving in a special saponaceous solution.

The Canadian Volunteer Service Medal is of unusual design for a war service medal, distinctly Canadian, with the bilingual inscription surrounding the marching figures, "1939 CANADA 1945 VOLUNTARY SERVICE VOLONTAIRE", with two small maple leaves before and after the word "SERVICE". It is of the standard diameter used for the round medal in the British Empire, one and seven-sixteenths of an inch or 1.4375". The clasp to hold the ribbon is straight with three bevels narrowing towards the lower part, and is attached to the medal by means of a sterling silver jump ring which passes through a loop on the medal to make one unit when assembled.

The bar to the Canadian Volunteer Service Medal given for overseas service may be recognized by the presence of a maple leaf on the centre of the front face. The ribbon is blue in the centre with two stripes of red and green on each side.

A request was received from the Department of National Defence for the Mint to strike 658,000 Campaign Stars of eight different designs for issue to members of the Armed Forces of Canada, in connection with service in the several campaigns during World War II. The stars will be struck in bronze.

Master punches for the France and Germany Star, 1939-45, Burma, Pacific, and Italy Campaign Stars were received from the Royal Mint, London, together with photographs of the blanking cutters, trimming and swaging tools. The preparation of the various tools and working dies to strike the stars was immediately undertaken in the die and tool room under the supervision of the Mint Engraver.

### **Mechanical and Electrical Branches:**

The main energies of the artificer and electrical staff during the first half of the year were directed towards the erection and adaptation of the machinery and electrical equipment in the Medal Branch needed to meet the demands for the manufacture of medals and campaign stars.

Additional machines were purchased new, some purchased second-hand from War Assets Corporation, three milling machines were borrowed from another government department, and many others were designed and completed by the Mint Staff.

Maintenance work, renewals and repairs to rolling mills, cutting machines, and coining presses, kept the lathes, shapers, milling machines, grinders and other machine shop equipment operating continuously throughout the year.

Two more coining presses were fitted with the single lift ejector device, mentioned in last year's report. This feature has proven so successful in remedying any movement in the medal placed upon the die for the second impression and in speeding up the outturn of coins that it is intended to incorporate this improvement on all the presses eventually.

An air compressor unit of 150 pounds pressure at maximum capacity was installed during the year, and air lines connected to all parts of the Operative Department, Refinery and Medal Branch. It has been most useful for cleaning purposes especially in deep recesses of motors and generators where accumulation of oil and dust presents a fire hazard; also on the coin and medal presses to keep lint and dust from ruining the specular surfaces of the finished products and in the operation of small grinding machines on fine precision work required on dies and special cutting tools.

One of the two drop hammers, which had been on order for over twelve months, was installed and put into operation striking clasps, overseas bars and campaign stars late in the year. With a ram or hammer weighing 200 lbs. and adjustable stroke to strike from 10 to 100 ton blows at 16 to 62 strokes per minute the hammers will not only relieve congestion of work on the coining presses, but will be useful to perform heavy operations which the presses cannot be expected to do. Equipped with the most modern safety devices and guards on moving parts, and mounted on special foundations to absorb vibration, both danger to worker and noise are reduced to the minimum.

The working conditions in the Rolling and Cutting Rooms were greatly improved by the installation of fluorescent lighting by the electrical staff.

Eight motors were completely re-wound, and the generator of the chromium-plating plant was fitted with a new commutator manufactured under the supervision of the Electrical Superintendent.

Several thousand pounds of scrap metal, worn out parts beyond further use, and obsolete machinery were salvaged and disposed of through War Assets Corporation.

### **Miscellaneous:**

Efforts have been continued to cut down wastage, institute the most economical methods of operating, and to remove hazards. By washing and re-washing all cleaning materials, filtering used oil for re-use on rolling mill bearings, mending clothing, repairing coin bags, etc.; by improving methods in processing coins and medals; and installing safety devices where there may be the slightest danger to a worker, much has been accomplished as a result of these efforts.

At the close of the year the number of craftsmen and apprentices employed in the mechanical branch, coining division and medal unit reached a total of 202 compared with 176 at the end of 1945.

The staff were entertained on two occasions by film-strips and motion pictures presented by the National Film Board as an aid to health education in keeping with Canada's Health and Welfare program.



# ASSAY OFFICE

Chief Chemist and Assayer—W. A. HAWKEY, A.C.S.M.; Assoc. Inst. M.M.

The number of assays made in the Department from the 1st January to the 31st December, 1946, was as follows:—

GOLD—		
Refinages.....	4,999	
Rough Gold.....	18,757	
Proofs.....	2,219	
Parting Proofs.....	701	
Parting Buttons.....	7,030	
Miscellaneous.....	883	
		34,589
SILVER—		
Standard Bars.....	2,356	
Pyx.....	782	
Proofs.....	811	
Fine Silver Ingots.....	661	
Medal Bars.....	1,101	
Medal Blanks.....	10	
Rings and Wire.....	42	
Worn Coin Ingots.....	176	
Miscellaneous.....	49	
		5,988
MISCELLANEOUS—		
Mint Residues (Sweeps, etc.).....	507	
For the Marking Act Inspector.....	97	
Commercial Assays.....	10	
		614
Total.....		41,191

The mean finenesses of the Silver Coinage struck in 1946 were as follows:—

Denomination	Standard Fineness	Mean Fineness
1 Dollar.....	800·00	799·76
50 cents.....	800·00	799·23
25 cents.....	800·00	799·51
10 cents.....	800·00	799·38

During the year under review 3,576 deposits were received, 149 being from the Vancouver Assay Office and the remaining 3,427 coming direct from the depositors.

The gross weight of the bullion received was 3,271,246·455 ounces comprised of the following:—

## FINE GOLD—

289 deposits weighing 623,642·825 oz., which, having a mean fineness of 997·306, required no further refining.

## CRUDE BULLION—

2,885 deposits; 2,528,174·470 oz. of an average fineness of 769·990 gold, 150·420 silver and containing 7·959% base metal.

## SCRAP (Jewellery and Dental)—

253 deposits weighing 37,593·550 oz. with an average fineness of 469·905 gold and 143·674 silver.

## FROM VANCOUVER ASSAY OFFICE—

81,835·600 oz. gross at 805·853 gold and 153·521 silver.

Samples from forty-five lots of nickel blanks, representing in all about nine million pieces, were assayed and found to satisfy specifications.

One fine gold working trial plate was made and fixed against our special standard.

A total of sixteen ounces of silver and one and a half ounces of gold proof plate was sold.

One hundred and twenty-five ounces of gold was specially refined and assayed for the National Research Council.

A number of suspected counterfeit silver coins were examined and where necessary assayed.

## REFINERY

Chief, Refinery Division—MR. C. J. MORRIS

During the year ended 31st December, 3,427 deposits were received from mines and miscellaneous depositors, and 149 from the Vancouver Assay Office, containing in all 2,652,245 ounces of fine gold and 372,595 ounces of fine silver. 250,805 ounces gross of the bullion received had to be re-melted before uniform assays could be obtained.

Six thousand, two hundred and forty-six fine gold trade bars amounting to 2,506,475 ounces gross containing 2,500,475 ounces of fine gold at an average assay of 997.59; granulated gold for trade purposes weighing 129,541 ounces gross containing 129,510 ounces fine gold at an average assay of 999.76 and fine silver bars weighing 354,143 ounces gross containing 353,943 ounces fine at an average assay of 999.43, were produced in the Refinery and delivered to the Mint Office.

Granulated gold scrap amounting to 247 ounces fine and 754 ounces fine of granulated silver and silver medal scrap were received from the Mint Office for treatment. One 14 kt. gold bar was cast for the production in the Operative Division of medals for the Royal Society of Canada.

The total recovery of sweep was 50.7 tons, which contained 10,714 ounces of fine gold, and 41,957 ounces of fine silver. Out of the amount recovered, mixed and sampled, sweep containing 8,896 ounces of fine gold and 34,826 ounces of fine silver was delivered to the Mint Office for sale.

Silver chloride from the refining of the rough gold deposits amounted to 720,684 ounces, which was treated to yield 353,943 ounces in fine silver bars and 766 ounces of granulated silver.

## DOMINION OF CANADA ASSAY OFFICE, VANCOUVER, B.C.

Manager—MR. G. N. FORD

The sum of \$2,406,170.90 was disbursed for gold bullion purchased and the following table shows the source, weights, etc. of the deposits:—

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territory.....	230	56,440.94	45,282.908	9,416.94
British Columbia.....	244	24,767.11	20,375.709	2,844.13
Alberta and Saskatchewan ...	10	146.64	110.825	12.90
Jewellery and Dental Scrap...	119	3,716.88	1,555.813	649.87
	603	85,071.57	67,325.255	12,923.84



## COMPARATIVE STATEMENTS

## (1) TOTALS FOR EACH YEAR UNDER ABOVE HEADINGS, 1939 TO 1946 INCLUSIVE—

1939.....	2,326	221,137.00	178,707.286	30,235.32
1940.....	2,224	219,976.14	175,301.091	31,822.17
1941.....	1,978	202,766.19	163,014.058	28,462.72
1942.....	1,460	183,738.18	147,517.917	26,422.54
1943.....	722	80,552.50	63,312.314	11,630.24
1944.....	577	48,983.87	37,679.028	7,649.55
1945.....	499	61,113.31	48,131.200	8,923.70
1946.....	603	85,071.57	67,325.255	12,923.84

## (2) TOTALS FOR EACH YEAR, 1939 TO 1946 INCLUSIVE, DISBURSED FOR GOLD BULLION PURCHASES

1939.....	\$6,442,365.81
1940.....	6,685,353.07
1941.....	6,216,906.58
1942.....	5,628,080.26
1943.....	2,414,688.10
1944.....	1,436,665.86
1945.....	1,835,799.67
1946.....	2,406,170.90

There has been a steady increase in the value of gold received since the low of 1944; it is estimated the 1947 production will be in excess of 1946.

## GENERAL

The annual stocktaking and inspection of the store of bullion and coin, as required by the Act establishing the Royal Canadian Mint, was conducted by the officers of the Auditor General's Department in March.

The Assay Commissioners, Dr. J. D. Babbit of the Division of Physics and Electrical Engineering, National Research Council, Mr. J. R. Mills of the Division of Chemistry, National Research Council, and Mr. J. A. Fournier, Chief Chemist of the Metallic Minerals Division, Department of Mines and Resources, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1945 had been minted in accordance with the provisions of the said Act, were sworn in by His Honour, Judge A. G. McDougall, in the presence of Mr. G. E. Lowe as representative of the Department of Finance, on the 3rd day of May, 1946.

The findings of the Assay Commissioners indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada since 1858.

I am, Sir,

Your obedient Servant,

A. P. WILLIAMS,  
For the Master, Royal Canadian Mint.

## APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on the 2nd January, 1908, to its disestablishment on the 30th November, 1931, and of the Royal Canadian Mint from the 1st December, 1931, to the 31st December, 1946.

Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	Statutory Value Coin and Bullion
	Ounces	\$	\$	Ounces Fine	\$
1908 to 1936.....	53,910,494.021	910,817,142.05	7,923,878.73	43,634,524.862	909,929,557.75
1937.....	4,959,970.893	81,311,693.73	.....	3,937,910.698	81,403,837.11
1938.....	5,601,260.642	90,920,063.13	.....	4,308,067.369	89,055,654.13
1939.....	6,181,336.290	100,656,105.55	.....	4,834,214.285	99,932,075.82
1940.....	6,295,218.554	103,169,970.38	30.00	5,026,792.728	103,913,055.43
1941.....	6,444,056.215	105,273,560.67	.....	5,134,347.805	106,136,385.78
1942.....	5,761,045.973	95,338,135.90	.....	4,611,892.227	95,336,270.79
1943.....	4,456,437.559	74,769,168.35	.....	3,645,739.964	75,364,131.92
1944.....	3,537,734.636	59,163,794.79	.....	2,829,755.000	58,496,226.17
1945.....	3,102,991.020	51,750,218.87	.....	2,499,163.674	51,662,297.22
1946.....	3,271,246.445	54,826,765.59	.....	2,665,964.763	55,110,381.61
	103,521,792.248	1,727,996,619.01	7,923,908.73	83,128,373.375	1,726,339,873.73

# APPENDIX B COIN ISSUED IN CANADA

	SILVER							NICKEL	TOMBAC	STEEL		BRONZE			
	Dollar \$	50c. \$	25c. \$	20c. \$	10c. \$	5c. \$	Total Silver \$			5c. \$	1c. \$	½c. \$			
1858 to 1907	New Brunswick, 1861, 2 and 4 Nova Scotia, 1861, 2 and 4, Prince Edward Island, 1871 Rest of Canada, 1858-1907	Struck in England													
						60,000	25,000	10,000	95,000				20,000	1,114	
														26,000	4,000
														10,000	
				1,249,018	5,094,978	150,000	3,040,000	2,926,000	12,459,996					803,315	
Totals			1,249,018	5,094,978	210,000	3,065,000	2,936,000	12,554,996					859,315	5,114	
GOLD															
		Sover- eigns £	\$10 \$	\$5 \$											
1908 to 1936	627,834	3,480,360	1,388,060												
1937															
1938															
1939															
1940			20	10											
1941															
1942															
1943															
1944															
1945															
1946															
	627,834	3,480,380	1,388,070	2,415,152	11,328,918	30,307,703	210,000	19,140,444	6,020,802	69,423,019	5,149,275.50	1,407,824.50	1,521,300.8	228,721	5,114

\* Of this amount \$15,000 returned in 1940.

† This coin struck in 1943.

Government  
Publications





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110

Canada Royal Canadian Mint  
111

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DEPARTMENT OF FINANCE

# ROYAL CANADIAN MINT

Report  
For Calendar Year  
1947

OTTAWA  
EDMOND CLOUTIER, C.M.G., B.A., L.Ph.,  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
CONTROLLER OF STATIONERY  
1948







CANADA

DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year

1947

Published by Authority of Hon. D. C. ABBOTT, M.P.,  
Minister of Finance

OTTAWA  
EDMOND CLOUTIER, C.M.G., B.A., L.Ph.,  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
CONTROLLER OF STATIONERY

1948



# ROYAL CANADIAN MINT

OTTAWA, ONTARIO,

February 21, 1948.

The Honourable,  
The Minister of Finance,  
Ottawa, Ontario.

SIR:

I have the honour to submit the following report on the operations of the Royal Canadian Mint during the calendar year 1947.

## COINAGE

There was a decrease of \$583,700 in the amount of coin issued during 1947 as compared with the previous year. A detailed statement of the issues by denominations for the years 1946 and 1947 is set out below:—

Denomination	Coin issued in	
	1946	1947
	\$	\$
SILVER COIN—		
1 dollar.....	91,000.00	67,000.00
50 cents.....	400,000.00	278,000.00
25 cents.....	556,000.00	397,000.00
10 cents.....	654,000.00	444,000.00
Total Silver.....	1,701,000.00	1,186,000.00
NICKEL COIN—		
5 cents.....	291,500.00	391,000.00
BRONZE COIN—		
1 cent.....	528,500.00	360,300.00
Total.....	2,521,000.00	1,937,300.00
Representing.....	Number of Pieces	
	68,335,000	50,501,000

In addition, the following coinages were executed for the Government of Newfoundland:—

Denomination	Value	Number of Pieces
	\$	
SILVER COIN—		
10 cents.....	11,973.60	119,736
5 cents.....	15,537.50	310,750
Total Silver.....	27,511.10	430,486
BRONZE COIN—		
1 cent.....	3,137.72	313,772
Total.....	30,648.82	744,258



Distribution of the coin issued to the various Agencies of the Bank of Canada was as follows:—

—	Silver				Nickel	Bronze
	Dollar	50 Cents	25 Cents	10 Cents	5 Cents	1 Cent
	\$	\$	\$	\$	\$	\$
Calgary.....		4,000.00	4,000.00	36,000.00	31,000.00	25,200.00
Charlottetown.....					1,000.00	
Halifax.....	2,000.00		2,000.00	2,000.00	6,000.00	6,500.00
Montreal.....	14,000.00	2,000.00	52,000.00	50,000.00	65,000.00	97,000.00
Ottawa.....	9,000.00	2,000.00	79,000.00	38,000.00	22,500.00	10,900.00
Regina.....		36,000.00	24,000.00	28,000.00	37,000.00	23,500.00
St. John.....		2,000.00	32,000.00	16,000.00	16,000.00	10,500.00
Toronto.....	36,000.00	162,000.00	134,000.00	226,000.00	110,500.00	139,700.00
Vancouver.....		70,000.00		34,000.00	58,000.00	18,000.00
Winnipeg.....	6,000.00		70,000.00	14,000.00	44,000.00	29,000.00
Total.....	67,000.00	278,000.00	397,000.00	444,000.00	391,000.00	360,300.00

Worn and mutilated coin withdrawn from circulation:—

—	Withdrawn	Net Increase in Circulation
	\$	\$
Silver Coin.....	80,563.50	1,105,436.50
Nickel Coin—5 cents (mutilated only).....	986.40	390,013.60
Tombac Coin—5 cents.....	286,797.70	
Steel Coin—5 cents.....	201.45	
Bronze Coin.....	2,519.55	357,780.45

### GOLD BULLION

Four thousand and thirty-three deposits gold bullion were received at the Mint during the year from Canadian Mining Companies, the Dominion of Canada Assay Office, Vancouver, and sundry persons. The gross weight of the deposits amounted to 3,559,497 ounces, containing by assay 2,868,469 ounces fine gold and 411,629 ounces fine silver. The receipts show an increase as compared with the year 1946 of 457 in the number of deposits, gross weight 288,251 ounces, gold content 216,224 ounces fine and fine silver 39,034 ounces.

The net amount paid by cheque to depositors was \$97,467,163.78. In addition, 12,558.323 ounces of fine gold with a statutory value of \$259,603.97 was also issued in payment of gold deposits.

Postage collected for the Postmaster General on deposits shipped by mail, postage collect, amounted to \$17,810.37.

Details of the origin of the bullion deposited at Vancouver and Ottawa are shown in the following table:—

Source	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
From Canadian Mines and Refineries—			
Ontario.....	2,247,383·904	1,828,959·546	243,677·74
Quebec.....	885,385·675	719,195·467	105,723·34
British Columbia.....	164,422·215	128,370·155	25,383·65
Manitoba.....	84,487·575	65,525·044	6,605·53
Yukon.....	59,740·325	47,680·003	9,699·04
Nova Scotia.....	1,286·800	1,163·282	44·40
North West Territories.....	83,870·090	60,508·658	16,143·13
Alberta and Saskatchewan.....	119·870	81·447	16·92
Total from Mines and Refineries...	3,526,696·454	2,851,483·602	407,293·75
From Jewellery and Scrap.....	34,333·849	17,265·341	4,405·29
GRAND TOTAL.....	3,561,030·303	2,868,748·943	411,699·04

A detail of the fine gold issued in the form of trade bars to the Bank of Canada, and granulated, sweep and medals to sundry persons is shown hereunder:—

	Ounces Fine
6,811 Trade Bars to Bank of Canada.....	2,724,800·999
Depositors.....	12,558·323
Sales to Manufacturers.....	113,834·606
Proof Plate.....	0·500
Medals.....	16·433
Sweep.....	7,873·357
	2,859,084·218

This total shows an increase of 193,119·455 ounces fine as compared with the year 1946.

## COINAGE AND MEDAL DEPARTMENT

The great urgency of the demands for coin for general circulation which has been so much in evidence during the past eight years has apparently abated considerably, as the number of good coins produced in 1947 was only 45,888,843 compared with the output of 73,168,921 in 1946 and 114,435,791 in 1945. However, 1947 production greatly exceeded the number of coins executed in any year previous to the War of 1939-45.

Operations were actively pursued on two shifts throughout the year in connection with the striking of Medals and Campaign Stars, clasps and Overseas Bars, for the various services on behalf of the Department of National Defence. To meet the general desire that medals should be made available in reasonable time, any machines and equipment in the Operative Division that could be freed from the main requirements of coinage work, were adapted to process the initial stages of medals and stars. Thereafter, they were passed to the Medal Branch proper, for the finishing, assembling, inspection and packing.

The two following statements give the number of good coins of all denominations produced in 1946 and 1947, and the number of completed medals and stars, etc., ready for issue:—

## COINAGE

	1946	1947
	Pieces	Pieces
DOMINION OF CANADA		
SILVER (800 fine)—		
1 dollar.....	93,055	65,595
50 cents.....	950,235	424,885
25 cents.....	2,210,810	1,524,554
10 cents.....	6,300,066	4,431,926
NICKEL—		
5 cents.....	6,952,684	7,603,724
BRONZE—		
1 cent.....	56,662,071	31,093,901
Canadian Total.....	73,168,921	45,144,585
NEWFOUNDLAND		
SILVER (800 fine)—		
10 cents.....		119,736
5 cents.....		310,750
BRONZE—		
1 cent.....		313,772
Newfoundland Total.....		744,258
Total Canadian and Newfoundland.....	73,168,921	45,888,843

## MEDALS AND CAMPAIGN STARS

Description	1946	1947
Canadian Volunteer Service Medals—		
800 and 925 fine silver.....	139,900	258,100
Clasps to Canadian Volunteer Service Medals—		
800 and 925 fine silver.....	157,480	364,095
Overseas Bars to Canadian Volunteer Service Medals—		
800 and 925 fine silver.....	36,950	218,050
CAMPAIGN STARS (Bronze)—		
1939-45.....		92,868
France and Germany.....		68,905
Italy.....		33,602
Atlantic.....		40,319
Aircrew Europe.....		12,306
Africa.....		4,135
Burma.....		5,745
Pacific.....		8,456
		266,336
SECOND AWARD BARS TO CAMPAIGN STARS—		
Battle of Britain.....		59
Atlantic.....		8,839
Aircrew Europe.....		1,009
North Africa.....		4,084
Pacific.....		999
Burma.....		934
France and Germany.....		10,009
		25,933

Details of the weights of bullion and metal melted, cast into bars, rolled into the gauged fillets, blanks cut, and the good coins and medals produced in 1947, are summarized in the following tables:—

## COINAGE

—	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
CANADA	Ounces	Ounces	Ounces	Ounces
SILVER (800 fine)—				
1 dollar.....	111,183·80	116,840·38	50,585·98	49,253·81
50 cents.....	271,782·40	319,413·60	202,818·24	159,429·04
25 cents.....	173,185·80	437,454·70	319,239·74	286,245·22
10 cents.....	625,008·10	555,050·00	316,684·84	332,105·02
Total Silver.....	1,181,160·10	1,428,758·68	889,328·80	827,033·09
NICKEL—	Pounds	Pounds	Pounds	Pounds
5 cents.....				76,221·21
BRONZE—				
1 cent.....	305,960·00	331,886·18	222,210·82	221,760·00
NEWFOUNDLAND	Ounces	Ounces	Ounces	Ounces
SILVER (800 fine)—				
10 cents.....				8,969·20
5 cents.....			4,324·10	11,596·78
			4,324·10	20,565·98
	Pounds	Pounds	Pounds	Pounds
BRONZE—				
1 cent.....				2,240·00
	Short Tons	Short Tons	Short Tons	Short Tons
	193·5	214·9	141·7	140·9

## MEDALS

—	Bars Cast	Bars Rolled	Blanks Cut	Finished Medals, etc.
SILVER (800 and 925 fine)—	Ounces	Ounces	Ounces	Ounces
Canadian Volunteer				} 299,396·00
Service Medals.....	964,021·63	877,827·55	434,129·37	
Clasps.....	94,952·77	94,952·77	37,981·11	
Overseas Bars.....	92,001·20	92,001·20	16,946·45	13,972·00
	1,150,975·60	1,064,781·52	489,056·93	313,368·00
CAMPAIGN STARS—	Pounds	Pounds	Pounds	Pounds
Eight Stars.....	86,630·50	69,058·22	22,039·76	10,653·00
Seven Award Bars to Campaign Stars.....		462·99	165·96	72·25
	86,630·50	69,521·21	22,205·72	10,725·25
	Short Tons	Short Tons	Short Tons	Short Tons
	82·9	71·3	27·8	16·2



### Melting House:

Additional melting work done consisted of 53,261·00 ounces of worn and mutilated silver coins which were withdrawn from circulation. These coins were cast into ingots for assay purposes, to be converted later into 800 standard coinage bars.

Worn and mutilated bronze-cent coins amounting to 2,915·80 pounds, and 2,808,200 five-cent coins weighing 28,082·00 pounds, which were taken out of circulation, were also melted down and cast into coinage bars for one-cent pieces.

### Rolling Room:

In this room the total weight of silver and bronze fillets, gauged to the thickness of the various denominations of coins, and for medals, campaign stars, clasps and overseas bars, was 286·2 tons.

Extra rolling consisted of the following:—

- (1) 1,196 ounces of fine silver for 26 grain, 10 grain and  $2\frac{1}{2}$  grain discs for the Assay Office;
- (2) 182 ounces fine gold proof plate for the Assay Office;
- (3) 60 ounces fine silver proof plate for the Assay Office;
- (4) 1,291 pounds of lead bars for the Assay Office;
- (5) 281 ounces of 800 silver for the Dominion Observatory;
- (6) 1,460 pounds of  $3\frac{1}{2}$ " bronze bars for the National War Finance Committee Medals.

### Cutting Room:

Extra work in the Cutting Room consisted of cutting the discs and blanks from the bars and fillets as they were gauged in the Rolling Room, mentioned in the foregoing paragraph.

The three existing cutting presses used on coinage work were quite inadequate to cut the stars and larger blanks, and as new presses were not available, the tri-cutter and a large shearing machine were fitted with the proper tools and adapted for cutting and trimming medals, stars, clasps and overseas bars.

In an effort to provide the Press Room with perfect blanks, a portable examining belt with individual motor was designed and made in the machine shop. The blanks are subjected to a more thorough examination by passing each blank over this machine to pick out defective pieces.

### Annealing Room:

Rapid tarnishing of the bronze annealed blanks became very troublesome during the year and the whole process of washing was changed which, with the addition of a burnishing barrel, containing a special solution, resulted in greatly improved work going to the Press Room.

### Press Room:

The table below shows the average production of coins per pair of dies for 1947, compared with similar figures for 1946:—

Denomination	1946				1947			
	Number of Good Pieces Coined	Number of Dies Used		Pieces per Pair of Dies	Number of Good Pieces Coined	Number of Dies Used		Pieces per Pair of Dies
		Obv.	Rev.			Obv.	Rev.	
Dollar.....	93,055	48	35	2,215	65,595	11	17	4,685
50 cents....	950,235	24	30	35,194	424,885	8	5	65,367
25 cents....	2,210,810	46	78	35,658	1,524,554	32	29	49,985
10 cents....	6,300,066	193	169	34,807	4,431,926	136	111	35,886
5 cents....	6,952,684	75	84	86,909	7,603,724	99	93	79,205
1 cent.....	56,662,071	200	168	307,946	31,093,901	175	134	201,255
	73,168,921	586	564		45,144,585	461	389	
	Average per pair of dies.....			127,250	Average per pair of dies.....			106,222



The second drop-hammer was installed during the year and a swedging machine for use on Campaign Stars.

Four presses were used to strike the first and second impressions on the Canadian Volunteer Service Medals when relaxation of coinage demands permitted. As a result of the installation featuring the single lift ejector device on three presses, the production of medals daily has increased 100 per cent over the original estimation.

The two drop-hammers were continuously busy striking Campaign Stars, Clasps and Overseas Bars. They have only a capacity of 4,000 units daily on two shifts, operating in conjunction with two trimming machines and one swedging machine, to produce the same number of pieces.

### Die and Medal Branch:

The total number of matrices, punches and dies engraved and prepared for coinage and medal work are detailed below:—

	Obverse	Reverse
Coinage, Matrices, Punches, Dies.....	492	456
Star Dies of Light Types.....	16	3
C.V.S.M. Dies.....	210	153
Governor-General Medal Dies.....	1	1
Secretary of State Die.....	1	0
Professional Institute Medal.....	1	1
Engineering Institute Medals.....	2	2
National Physical Fitness.....	1	1
Clasp Dies for C.V.S.M.....	39	35
Overseas Bar Dies (C.V.S.M.).....	35	32
Campaign Bar Dies (Star).....	5	1

New master dies were made for the following medals:—

- Professional Institute of the Civil Service of Canada;
- National Amateur Athletic Achievement Award;
- The Ross Medal for the Engineering Institute of Canada;
- The Keefer Medal for the Engineering Institute of Canada;
- Crest for the Governor-General's Medal.

The above dies were engraved direct in the steel by the Mint Engraver from designs submitted by the Departments of Government and other organizations concerned. The Seal of the Secretary of State was also engraved by the Mint Engraver.

The balance of the working punches from which the dies are made were received from the Royal Mint, London, early in the year, for striking the eight kinds of Campaign Stars, viz.: 1939-45; France and Germany; Italy; Atlantic; Aircrew Europe; Africa, Burma and Pacific Stars.

Punches were also received from the Royal Mint, London, for the seven Second Award Bars to the Campaign Stars mentioned above, excepting the 1939-45 Star, for which no second award clasps are necessary. When a clasp is awarded to one of the Campaign Stars, denoting the award of another Star, this further award will be shown as a bar, suitably inscribed, which will be attached to the ribbon of the first star earned. For example, if an individual has qualified for the Aircrew Europe and France and Germany Stars, the latter will be noted by a bar inscribed "France and Germany" attached to the ribbon of the Aircrew Europe Star.

The issue of the total requirements for the above Bars has been completed, and a proportionate issue of each Star, numbering 266,336 of the total required of 658,000, has also been made.

At the request of His Excellency, the Viscount Alexander of Tunis, the Governor-General's Medals were struck from dies prepared in England. There were 194 bronze, 56 sterling silver and 9 gold (silver gilt) medals, 2 1/16" diameter, struck as awards to students attaining the highest academic standing at Canadian Universities. The obverse design bears the conjoint busts of Their Excellencies, facing right, surrounded by the inscription "HIS EXCELLENCY THE GOVERNOR-GENERAL AND LADY ALEXANDER" and on the reverse are engraved the Ensigns Armorial of His Excellency The Viscount Alexander of Tunis. Illustrated on Plate I.

The Professional Institute of the Civil Service of Canada requested the Mint to execute new designs for the Professional Institute Medal, to be awarded to scientific, professional or technical workers belonging to the Dominion or Provincial Civil Service, for outstanding contributions to science or other fields of endeavour. Obverse and reverse master dies were engraved by hand by the Mint Engraver. The obverse design depicts the northern hemisphere on a globe in high relief, surrounded by the inscription "PROFESSIONAL INSTITUTE OF THE CIVIL SERVICE OF CANADA—1920"—above, a Canadian beaver; below, a ribbon with the words "WE SERVE THE STATE," with branches of maple and laurel leaves on each side. On the reverse is engraved a view of the Peace Tower from between pillars of the East Block, surrounded by the words "THE PROFESSIONAL INSTITUTE MEDAL," in the exergue "FOR MERITORIOUS ACHIEVEMENT—AWARDED TO . . ." with space left for engraving the name of the recipient. The designs are illustrated on Plate II.

Four 14 carat gold medals were struck, 2" diameter, two of which were engraved with the recipient's name, as follows:—

"Otto Maass, O.B.E., Ph.D., LL.D., F.H.S., 1947."

"James Hamilton Lowther, 1947."

The Department of National Health and Welfare requested the Mint to furnish sketches of appropriate designs for a gold medal to be known as the National Amateur Athletic Achievement Award. After the most suitable design was selected by members of the National Council on Physical Fitness, the obverse and reverse master dies were engraved by hand by the Mint Engraver.

The medal bears on the obverse, the Armorial Bearings of the Dominion of Canada, surrounded by a garter of entwined maple leaves, the whole encircled by the title or inscription "NATIONAL AMATEUR ATHLETIC ACHIEVEMENT AWARD"; below, a scroll engraved with the motto in French, "QUE LA VOIE SOIT OUVERTE AU TALENT". And on the reverse "PRESENTED BY THE NATIONAL COUNCIL ON PHYSICAL FITNESS TO.....FOR OUTSTANDING ACHIEVEMENT IN AMATEUR ATHLETICS," surrounded by a series of sprays of laurel leaves. Illustrated on Plate III.

One 14 carat gold medal 2 1/16" diameter, was struck during the year engraved with the name of the recipient—"Barbara Ann Scott—1947."

Fifteen Bronze specimen medals of this award were also struck for the Department of National Health and Welfare.

Two additional awards were authorized by the Engineering Institute of Canada and dies were engraved for the new Keefer Medal and the Ross Medal. The medals are similar in design to the other Engineering Institute Medals; the Keefer Medal being awarded for the best paper on a civil subject and the Ross Medal for the best paper on an electrical subject.



PLATE I



PLATE II

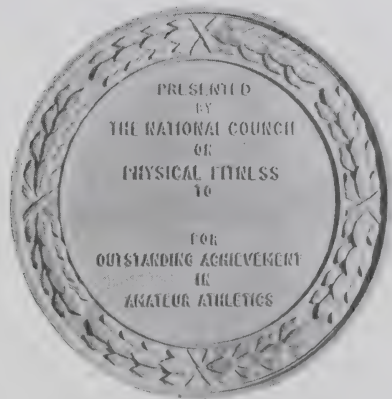


PLATE III



Nine 10 carat gold medals and three in toned bronze were issued to the Engineering Institute of Canada, engraved as follows:—

- 1 Gzowski Medal,  
"J. G. G. Kerry, 1946."
- 1 Plummer Medal,  
"W. J. Tomlinson, 1946."
- 1 Leonard Medal,  
"George Gedge, 1946."
- 3 Ross Medals,  
"R. A. H. Hayes, 1944,"  
"S. T. Fisher, 1945,"  
"A. B. Hunt, 1946."
- 3 Keefer Medals,  
"M. V. Sauer, 1944,"  
"R. M. Hardy, 1946,"  
"E. D'Appolonia, 1946."
- 1 Sir John Kennedy Medal,  
"Lorne A. Campbell."
- 2 Julian C. Smith Medals,  
"Charles Camsell,"  
"John B. Challies."

Four gold medals were issued to the Royal Society of Canada, engraved with the recipient's name, as follows:—

- 1 Flavelle Medal, 14 kt. gold,  
"G. B. Reed, 1947."
- 1 Henry Marshall Tory Medal, 18 kt. gold,  
"E. F. Burton, 1947."
- 1 Willet G. Miller Medal, 18 kt. gold,  
"F. H. McLearn, 1947."
- 1 Tyrrell Medal, fine gold,  
"A. R. M. Lower, 1947."

Sixty-one Long Service and Good Conduct Medals were struck in fine silver, each mounted with clasp and ribbon, for the Royal Canadian Mounted Police. The name of the recipient was engraved on the edge of each medal.

Five hundred and eighty-four 3" bronze Medallions were struck and toned for the National War Finance Committee, with the name of the recipient engraved on the reverse.

One John Webster Medal for Good Airmanship was struck in bronze,  $2\frac{1}{4}$ " in diameter, at the request of the Department of Transport, Civil Air Division. It was awarded to Charles W. Wilson, Vancouver, B.C., whose name was later engraved on the medal.

A great variety of punches, cutters, plates, jigs, bolsters and tools used for the cutting, swedging, trimming and mounting operations were made under the supervision of the Mint engraver.

During the year many labour saving devices were invented, tools, jigs and dies redesigned and new processes introduced in the manufacture of Canadian Volunteer Service Medals, Campaign Stars, etc., resulting in considerable economy of labour and costs, as well as speeding up the production of these units in the Medal Branch.

### **Mechanical and Electrical Services:**

Maintenance repairs and renewals of all machines and equipment in the Melting Branch and Coining Division are tending to increase through continuous heavy pressure of work during the past ten years. A recapitulation of the various jobs performed by the artificer and electrical staff for all branches of the Mint

service to maintain equipment in good condition and machinery operating efficiently shows a total of over 2,000 different items, in addition to work on dies and tools.

These duties included much heavy work grinding rolls, refitting bearings, installing safety switches and starters on the rolling mills, the overhaul of the coining presses, machining and fitting bronze and steel knuckles, feed fingers, guides, striking blocks, stoops, bolsters, crankshafts, and clutches repaired on coining presses. In the annealing room new lead-lined tanks, copper colanders, and one hundred cast iron annealing pots were reconditioned, and eighty new ones machined, with aluminum and stainless steel equipment in the acid blanching room, bright-dipping Campaign Stars. One hundred and fifty moulds for one-cent coinage bars and for the Canadian Volunteer Service Medal Bars were made for the Melting House.

Work in connection with the new tools for cutting, striking and trimming the Campaign Stars, was carried out successfully. After much difficulty, an old shearing machine was revamped for cutting the blanks. There were no other machines available which were heavy enough to cut out the star shaped blanks. A complete overhaul was required, repairing of gears, new shaft, bed and cutting punch holders made, and ejector device designed, before it could be converted for use as a blanking cutter.

A gas furnace complete with new burner, air and gas lines, was made and installed in the Assay Office.

The worm gear speed reduction unit on the Mixer in the Refinery was repaired.

New electric wiring and lighting was installed in the basements of the Mint Office and Assay Office, replacing the old wiring which was becoming a hazard.

A modern electroplating rectifier was purchased for chromium plating and the old generator plant dismantled. The new equipment is more accurate for the critical operations required of chrome-plating and increases the range of the size of articles needing protection from wear, such as large dies, gears, collars and cutters.

Safety guards on all working parts where there is any danger to workmen have been installed, motors equipped with the latest safety switches and starters, safety power panels erected and every precaution taken to safeguard the health and welfare of the staff.

### Miscellaneous:

The National Film Board entertained the entire staff of the Mint on two occasions by showing a number of reels of moving pictures.

The number of craftsmen and apprentices in the Mechanical Branch, Coining and Medal Department, remained fairly constant during the year, about 200.

### Assay Department:

The number of assays made in the Department from January 1 to December 31, 1947, was as follows:—

#### GOLD—

Refinages.....	5,225
Rough Gold.....	22,134
Proofs.....	2,529
Parting Proofs.....	687
Parting Buttons.....	8,357
Miscellaneous.....	1,529
	<hr/> 40,461



## SILVER—

Standard Bars.....	1,185	
Medal Bars.....	1,173	
Pyx.....	504	
Newfoundland Coinage.....	16	
Fine Silver.....	493	
Worn Coin Ingots.....	146	
Jump Rings for Medals.....	32	
Proofs.....	669	
Miscellaneous.....	23	
		4,241

## MISCELLANEOUS—

Mint Residues (Sweep, etc.).....	458	
For the Marking Act Inspector.....	243	
Commercial.....	4	
Nickels, Coppers, etc.....	39	
		744
Total.....		45,446

The mean finenesses of the Silver Coinage struck in 1947 were as follows:—

Denomination	Standard Fineness	Mean Fineness
1 dollar.....	800.00	799.99
50 cents.....	800.00	799.25
25 cents.....	800.00	799.36
10 cents.....	800.00	799.62

Some coinage for the Government of Newfoundland was undertaken during the year. The mean finenesses of the coins assayed are given below:—

Denomination	Standard Fineness	Mean Fineness
10 cents.....	800.00	799.77
5 cents.....	800.00	800.65

During the year ending December 31, 1947, 4,033 deposits were received in the Mint. The gross weight of this bullion was 3,559,496.703 and consisted of the following:—

## FINE GOLD—

273 deposits weighing 570,998.104 ounces of a mean fineness of 997.249.

## CRUDE BULLION—

3,294 deposits; 2,883,769.750 ounces of an average fineness of 771.301 gold, 147.431 silver and containing 8.126 per cent base metal.

## SCRAP (Jewellery and Dental)—

325 deposits weighing 30,220.809 ounces at an average fineness of 507.197 gold and 135.262 silver.

## FROM VANCOUVER ASSAY OFFICE—

141 ingots; 74,508.040 ounces gross at 798.025 gold and 154.678 silver.

Two working trial plates, one each of gold and silver, were made and fixed against our standards.

One-half ounce of gold proof and 24 ounces of silver proof was sold.

Thirty-four ounces of fine silver and 32.033 ounces fine gold were especially refined and assayed for the National Research Council.

Samples from 29 lots of nickel blanks (5,800,000 pieces) were assayed and found to satisfy specifications.

A number of medals of various finenesses were electroplated for the Operative Department.

## REFINERY DEPARTMENT

### Tellurium in Fine Silver:

For many years the Mint has produced silver which is fit only for casting, being unsuitable for any form of milling despite its high fineness (999.5). A gravimetric determination has recently shown that a sample of Refinery silver chloride before reduction contained 0.011 per cent tellurium, 0.0043 per cent phosphorus and a trace of selenium. After reduction the percentage of tellurium rose to 0.019 per cent and the phosphorus diminished to 0.0012 per cent. This shows that not only is tellurium incompletely removed from the deposits by the chlorination process, but that this refractory element is also picked up from the cast iron plates which have hitherto been used for reduction. As there is no metallurgical laboratory at the Mint, an experimental furnace has been built in the silver melting room and with its aid we have discovered how to make our silver fit for coinage. It is hoped later to speed up the process by the use of a nitre gun, the ultimate object being the formation of tellurium dioxide ( $\text{TeO}_2$ ), which is afterwards readily eliminated. The minerals in the gold bearing ores from which tellurium is derived are sylvanite ( $\text{Au, Ag} \text{ Te}_2$ ), petzite ( $\text{Ag, Au} \text{ Te}_2$ ), altaite ( $\text{Ag, Au, Pb} \text{ Te}_2$ ) and hessite ( $\text{Ag}_2\text{Te}$ ). Some of the tellurium forms chloride during our process, but the last traces have hitherto been very difficult to remove.

To prove the success of our research work, the following exhibits were produced:—

- (a) Fine silver rolled to half the thickness of a ten cent piece;
- (b) Standard silver 800 fine;
- (c) Standard silver rolled to coin thickness;
- (d) Blanks from the new silver;
- (e) Coins from the new silver.

### Modern Melting:

Forced draught furnaces and manual stirring are still in use at the Mint for the melting and mixing of gold bullion. Modern high frequency furnaces have so many outstanding advantages that our present methods appear completely out-of-date. The electro-magnetic forces stir the liquid metal so effectively that segregation of the elements is impossible, while such difficult refractories as nickel and tellurium are melted so quickly and mixed so thoroughly there is no contamination.

In addition to this, increased speed and flexibility are combined with a low working temperature, assuring more comfortable working conditions which increase the skill and morale of the operator.

Plans for the introduction of these induction furnaces have already been made, but unfortunately most of the equipment necessary is manufactured in the United States and the installation of the furnaces must be postponed owing to the dollar situation.

### Post-war Shortages:

Owing to strikes, world shortages and other causes, our supply of such essentials as chlorine, borax, sodium carbonate, bone ash and chlorination tubes ceased altogether at various times during the year. Considerable ingenuity was necessary to surmount these shortages, but each was successfully tackled, either by experimenting with substitutes or exploring fresh markets.

### Miscellaneous:

Three separate consignments of gold were melted and cast into standard Canadian bars for the Bank of Canada.

Lot I—42,929.282 ounces fine gold.

Lot II— 2,134.600 ounces gross.

Lot III—53,764.750 ounces gross.

A series of bullion melts was made for the Bank of Commerce and cast into bars of specified weights.

Experimental work was carried out on fourteen carat medal alloy and a very satisfactory result was achieved with gold, copper and zinc.

In order to compare methods of refining and sweep sampling, a visit was paid to the International Nickel Company's plant at Copper Cliff, with results satisfactory to both sides.

Steel coins withdrawn from circulation by the Finance Department were destroyed in the presence of a representative of that Department and on December 19, thirteen watch cases and eight rings seized by the Mounted Police were destroyed before the eyes of a representative of the Customs and Excise Division.

The work of the Refinery during the year is reflected in the following details:—

#### BULLION

Source	Number of Deposits	Fine Gold	Fine Silver
		Ounces	Ounces
Mines.....	3,567	2,793,681.807	396,318.34
Vancouver Assay Office.....	141	59,459.291	11,524.75
Miscellaneous.....	325	15,327.913	3,785.52

Refined and Delivered	Number	Gross Weight	Fine Weight	Average Assay
		Ounces	Ounces	
Fine Gold Bars.....	6,672	2,675,512.304	2,668,163.137	997.2
Granulated Gold.....		130,947.400	130,922.333	999.8
Fine Silver Bars.....	330	372,412.64	372,196.41	999.4
Granulated Silver.....		2,135.70	2,134.63	999.5

BULLION—*Concluded*

Received for Disposal	Sources	Gold Fine	Silver Fine	Platinum Fine
		Ounces	Ounces	Ounces
Granulated Gold.....	Mint Office	147·281		
Silver Medal Scrap.....	Mint Office		280·36	
Gold Medal Scrap.....	Mint Office	78·014		
Granulated Silver.....	Mint Office		101·97	
Jewellery Scrap.....	Various			0·825
Special Processes	Number	Gross Weight	Fine Gold	Fine Silver
			Ounces	Ounces
Re-melts.....	445	361,071·255		
Toughenings.....	9	6,521·175		
Sweeps.....	36	97,310·0 lbs. av.	9,956·03	36,511·17
Chloride.....		371,582·28 lbs.		

## DOMINION OF CANADA ASSAY OFFICE, VANCOUVER, B.C.

The sum of \$2,081,867·67 was disbursed for gold bullion purchases and the following shows source, weights, etc., of the deposits:—

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territory.....	240	59,708·05	47,663·417	9,697·18
British Columbia.....	216	12,069·94	10,034·612	1,255·84
Alberta and Saskatchewan...	9	112·72	76·141	16·41
North West Territories.....	3	37·89	27·625	5·98
Jewellery and Dental Scrap...	110	4,113·04	1,937·428	619·77
	578	76,041·64	59,739·223	11,595·18

## COMPARATIVE STATEMENTS

(1) TOTALS FOR EACH YEAR UNDER ABOVE HEADINGS, 1940 TO 1947, INCLUSIVE:—

1940.....	2,224	219,976·14	175,301·091	31,822·17
1941.....	1,978	202,766·19	163,014·058	28,462·72
1942.....	1,460	183,738·18	147,517·917	26,422·54
1943.....	722	80,552·50	63,312·314	11,630·24
1944.....	577	48,983·87	37,679·028	7,649·55
1945.....	499	61,113·31	48,131·200	8,923·70
1946.....	603	85,071·57	67,325·255	12,923·84
1947.....	578	76,041·64	59,739·223	11,595·18



COMPARATIVE STATEMENTS—*Concluded*

## (2) TOTALS FOR EACH YEAR, 1940 TO 1947, INCLUSIVE, DISBURSED FOR GOLD BULLION PURCHASES:—

1940.....	\$6,685,353·07
1941.....	6,216,906·58
1942.....	5,628,080·26
1943.....	2,414,688·10
1944.....	1,436,665·86
1945.....	1,835,799·67
1946.....	2,406,170·90
1947.....	2,081,867·67

## GENERAL

The annual stocktaking and inspection of the store of bullion and coin, as required by the Act establishing the Royal Canadian Mint, was conducted by the officers of the Auditor General's Department in March.

The Assay Commissioners, Dr. J. D. Babbitt of the Division of Physics and Electrical Engineering, National Research Council, Mr. P. Gishler of the Division of Chemistry, National Research Council, and Mr. J. A. Fournier, Chief Chemist of the Metallic Minerals Division, Department of Mines and Resources, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1946 had been minted in accordance with the provisions of the said Act, were sworn in by His Honour, Judge A. G. McDougall, in the presence of Mr. G. E. Lowe as representative of the Department of Finance, on the 6th day of May, 1947.

The findings of the Assay Commissioners indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada since 1858.

I am, Sir,

Your obedient Servant,

W. C. RONSON,  
Master, Royal Canadian Mint.



## APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on January 2, 1908, to its disestablishment on November 30, 1931, and of the Royal Canadian Mint from December 1, 1931 to December 31, 1947.

Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Value (Statutory) Gold Only	Coin	Bullion	Statutory Value Coin and Bullion
	Ounces	\$	\$	Ounces Fine	\$
1908 to 1937.....	58,870,464.914	992,128,835.78	7,923,878.73	47,572,435.560	991,333,394.86
1938.....	5,601,260.642	90,920,063.13	.....	4,308,067.369	89,055,654.13
1939.....	6,181,336.290	100,656,105.55	.....	4,834,214.285	99,932,075.82
1940.....	6,295,218.554	103,169,970.38	30.00	5,026,792.728	103,913,055.43
1941.....	6,444,056.215	105,273,560.67	.....	5,134,347.805	106,136,385.78
1942.....	5,761,045.973	95,338,135.90	.....	4,611,892.227	95,336,270.79
1943.....	4,456,437.559	74,769,168.35	.....	3,645,739.964	75,364,131.92
1944.....	3,537,734.636	59,163,794.79	.....	2,829,755.000	58,496,226.17
1945.....	3,102,991.020	51,750,218.87	.....	2,499,163.674	51,662,297.22
1946.....	3,271,246.445	54,826,765.59	.....	2,665,964.763	55,110,381.61
1947.....	3,559,496.703	59,296,515.31	.....	2,859,084.218	59,102,514.80
	107,081,288.951	1,787,293,134.32	7,923,908.73	85,987,457.593	1,785,442,388.53



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( DEPARTMENT OF FINANCE )

# ROYAL CANADIAN MINT

Report  
For Calendar Year  
1948

OTTAWA  
EDMOND CLOUTIER, C.M.G., B.A., L.Ph.,  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
CONTROLLER OF STATIONERY

1949









DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year

1948

Published by Authority of Hon. D. C. ABBOTT, M.P.,  
Minister of Finance

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1949



# ROYAL CANADIAN MINT

OTTAWA, ONTARIO.

The Honourable,  
The Minister of Finance,  
OTTAWA, Ontario.

SIR:

I have the honour to submit the following report on the operations of the Royal Canadian Mint during the calendar year 1948.

ADMINISTRATIVE AND MINT OFFICE  
Chief Administrative Officer - A. P. Williams

## COINAGE

There was an increase of \$2,216,456 in the amount of coin issued during 1948 as compared with the previous year. A detailed statement of the issues by denominations for the years 1947 and 1948 is set out below:—

Denomination	Coin issued in			
	1947	1948		1948 Total
		Dated 1947	Dated 1948	
	\$	\$	\$	\$
SILVER COIN—				
1 dollar.....	67,000.00	21,876.00	8,080.00	29,956.00
50 cents.....	278,000.00	30,242.00	17,758.00	48,000.00
25 cents.....	397,000.00	1,099,038.75	632,961.25	1,732,000.00
10 cents.....	444,000.00	983,424.20	36,575.80	1,020,000.00
Total Silver.....	1,186,000.00	2,134,580.95	695,375.05	2,829,956.00
NICKEL COIN—				
5 cents.....	391,000.00	525,076.60	90,423.40	615,500.00
BRONZE COIN—				
1 cent.....	360,300.00	452,296.05	256,003.95	708,300.00
		3,111,953.60	1,041,802.40	4,153,756.00
TOTAL.....	1,937,300.00	\$4,153,756.00		
Representing.....		Number of Pieces		
		70,043,894	30,350,062	
TOTALS.....	50,501,000	100,393,956		100,393,956

Distribution of the coin issued to the various Agencies of the Bank of Canada was as follows:—

—	Silver				Nickel	Bronze
	Dollar	50 Cents	25 Cents	10 Cents	5 Cents	1 Cent
	\$	\$	\$	\$	\$	\$
Calgary.....		2,000	162,000	92,000	46,000	54,000
Charlottetown.....						
Halifax.....		6,000	86,000	44,000	24,000	20,500
Montreal.....	6,000	4,000	304,000	210,000	160,000	183,700
Ottawa.....	13,956	10,000	92,000	54,000	28,000	24,300
Regina.....		8,000	158,000	102,000	30,500	43,000
St. John.....			48,000	42,000	20,000	6,000
Toronto.....	6,000	14,000	594,000	344,000	219,000	251,500
Vancouver.....	2,000	2,000	76,000	82,000	39,000	64,600
Winnipeg.....	2,000	2,000	212,000	50,000	49,000	60,700
Total.....	29,956	48,000	1,732,000	1,020,000	615,500	708,300

Worn and mutilated coin withdrawn from circulation:—

—	Withdrawn	Net Increase in Circulation
	\$	\$
Silver Coin.....	50,301.75	2,779,654.25
Nickel Coin—5 cents (mutilated only).....	1,062.15	614,437.85
Tombac Coin—5 cents.....	138,930.05	.....
Steel Coin—5 cents.....	438.25	.....
Bronze Coin.....	2,406.41	705,893.59

### GOLD BULLION

Four thousand seven hundred and thirteen deposits of gold bullion were received at the Mint during the year from Canadian Mining Companies, the Dominion of Canada Assay Office, Vancouver, and sundry persons. The gross weight of the deposits amounted to 4,252,389 ounces, containing by assay 3,401,991 ounces fine gold and 504,369 ounces fine silver. The receipts show an increase as compared with the year 1947 of 482 in the number of deposits, gross weight 692,892 ounces, gold content 533,522 ounces and fine silver 92,740 ounces.



The net amount paid by cheque to depositors was \$115,020,002.50. In addition 14,716.011 ounces of fine gold with a statutory value of \$304,207.38 was also issued in payment of gold deposits.

Postage collected for the Postmaster General on deposits shipped by mail, postage collect, amounted to \$25,764.00.

Details of the origin of the bullion deposited at Vancouver and Ottawa are shown in the following table:

Source	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
From Canadian Mines and Refineries—			
Ontario.....	2,581,418.609	2,092,486.019	294,693.23
Quebec.....	1,073,891.150	868,557.978	123,665.17
British Columbia.....	239,507.570	179,085.529	36,406.81
Manitoba.....	102,365.925	79,811.495	8,622.52
Yukon.....	76,047.525	60,605.961	12,421.31
Nova Scotia.....	203.575	188.484	7.98
North West Territories.....	143,274.940	101,475.956	25,283.75
Alberta and Saskatchewan.....	111.370	81.636	7.35
Total from Mines and Refineries...	4,216,820.664	3,382,293.058	501,108.12
From Jewellery and Scrap.....	37,877.320	20,320.631	3,419.93
GRAND TOTAL.....	4,254,697.984	3,402,613.689	504,528.05

The following table shows the disposition of the fine gold produced in various forms (trade bars, granulated gold, sweep, medals, etc.):—

	Ounces Fine
8,195 Trade Bars transferred to Exchange Fund Account of Minister of Finance and held in safe-keeping by Bank of Canada.....	3,277,758.706
Depositors—granulated.....	14,716.011
Sales to Manufacturers—granulated.....	108,659.045
Proof Plate for assay purposes.....	2.500
Medals.....	4.862
Sweep.....	3,932.211
	<u>3,405,073.335</u>

This total shows an increase of 545,989.117 ounces fine as compared with the year 1947.

## COINAGE AND MEDAL DEPARTMENT

*Chief:* R. J. EDMUNDS

The production\* of coins in 1948 again nearly reached the hundred million mark, over double the output of the previous year, and approximated closely to the unprecedented heavy demands made upon this department for coins during the War Years.

Contemporaneously with the increased work of coinage, it was necessary to strike a considerable number of medals, campaign stars, clasps and overseas bars for the various services on behalf of the Department of National Defence.

\*It will be noted that the actual production of coins in any given year may differ slightly from the number of coins issued for circulation during the year. There is usually a small but varying number of coins held in stock at year end.

This emergency compelled recourse to the employment of additional craftsmen and to the expedient of operating the machinery for double the normal hours daily from January to August, and on three shifts to the end of the year.

The Medal Branch was in continuous operation on one shift throughout the year finishing, assembling, inspecting and packing war medals, campaign stars, and overseas bars.

Consequent on the change in the King's titles the inscription on the obverse of Canadian coins was revised during 1948. The words and abbreviations D:G: REX ET IND: IMP: were deleted and the following substituted: "DEI GRATIA REX".

All coins dated 1948 were required to be struck with the new inscription. The master dies and working punches were not ready until late in the year. To meet the demand early in the year all coins bore the date 1947 with a small finely executed maple leaf after the "7", to indicate that such coins were struck in 1948, but without the new title could not be so dated.

The number of good coins of all denominations produced during 1947 and 1948, and the number of war medals, campaign stars, etc., assembled and packed ready for issue, are shown on the two following comparative tables:—

#### COINAGE

	1947	1948
	Pieces	Pieces
DOMINION OF CANADA		
SILVER (800 fine)—		
1 dollar.....	65,595	39,915
50 cents.....	424,885	76,217
25 cents.....	1,524,554	6,958,362
10 cents.....	4,431,926	10,061,534
NICKEL (pure)—		
5 cents.....	7,603,724	11,405,913
BRONZE—		
1 cent.....	31,093,901	69,623,227
Total Canadian.....	45,144,585	98,165,168
NEWFOUNDLAND		
SILVER (800 fine)—		
10 cents.....	119,736	.....
5 cents.....	310,750	.....
BRONZE—		
1 cent.....	313,772	.....
Total Newfoundland.....	744,258	.....
Total Canadian and Newfoundland.....	45,888,843	98,165,168

## MEDALS AND CAMPAIGN STARS

Description	1947	1948
Canadian Volunteer Service Medals—		
800 and 925 fine silver.....	258,100	158,700
Clasps to Canadian Volunteer Service Medals—		
800 and 925 fine silver.....	364,095	150,021
Overseas Bars to Canadian Volunteer Service Medals—		
800 and 925 fine silver.....	218,050	127,500
CAMPAIGN STARS (Bronze)—		
1939-45.....	92,868	107,132
France and Germany.....	68,905	91,095
Italy.....	33,602	73,898
Atlantic.....	40,319	.....
Aircrew Europe.....	12,306	.....
Africa.....	4,135	7,865
Burma.....	5,745	.....
Pacific.....	8,456	.....
	266,336	279,990
SECOND AWARD BARS TO CAMPAIGN STARS—		
Battle of Britain.....	59	.....
Atlantic.....	8,839	.....
Aircrew Europe.....	1,009	.....
North Africa.....	4,084	.....
Pacific.....	999	.....
Burma.....	934	.....
France and Germany.....	10,009	.....
	25,933	.....

The number of coins of each denomination struck in 1948 bearing the date 1947 and distinguishing maple leaf are as follows:

1 dollar.....	21,135	10 cents.....	9,638,793
50 cents.....	38,433	5 cents.....	9,595,124
25 cents.....	4,393,938	1 cent.....	43,855,448

Details of the weights of silver bullion and copper metal cast into coinage bars, bars rolled, blanks cut and good coins produced are summarized in the following table:—

## COINAGE

—	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
CANADA	Ounces	Ounces	Ounces	Ounces
SILVER (800 fine)—				
1 dollar.....	97,461·40	100,023·50	46,332·78	29,946·14
50 cents.....				28,577·53
25 cents.....	2,236,552·00	2,908,775·40	1,443,681·92	1,303,333·93
10 cents.....	1,328,195·80	1,224,709·20	787,057·55	754,748·46
Total Silver.....	3,662,209·20	4,233,508·10	2,277,072·25	2,116,606·06
NICKEL—	Pounds	Pounds	Pounds	Pounds
5 cents.....				114,421·12
BRONZE—				
1 cent.....	754,102·50	760,516·59	508,200·00	496,363·00
	Short Tons 502·6	Short Tons 525·4	Short Tons 332·2	Short Tons 378·0

## MEDALS

—	Bars Cast	Bars Rolled	Blanks Cut	Finished Medals, etc.
CANADA	Ounces	Ounces	Ounces	Ounces
SILVER (800 and 925 fine)—				
Canadian Volunteer				
Service Medals.....	399,103·70	441,139·30	199,952·55	158,700·00
Clasps.....	152,296·31	152,296·31	46,733·98	24,003·36
Overseas Bars.....				8,925·00
	551,400·01	593,435·61	246,686·53	191,628·36
	Pounds	Pounds	Pounds	Pounds
CAMPAIGN STARS—				
4 Stars.....	49,236·50	59,080·29	19,074·95	12,039·56
	Short Tons 43·5	Short Tons 49·9	Short Tons 18·0	Short Tons 12·6

## Melting House:

In addition to the 546·1 tons of silver and bronze bars melted for coinage and medals, there were 40,109·19 ounces of worn and mutilated silver coins redeemed and cast into ingots for conversion in 800 standard coinage bars; 82,320,000 tombac five-cent pieces weighing 82,320·00 pounds, and 2,663·67 pounds of worn and mutilated one-cent pieces melted for one-cent coinage.

## Rolling Room:

Extra rolling consisted of the following:—

- (1) 3,087 ounces of fine silver, 39 ounces fine silver proof-plate for the Assay Office;
- (2) 187 ounces of pure copper, 1,810 pounds of lead for the Assay Office; in addition to the 575.3 tons of silver and bronze fillets gauged to the thickness of the various denominations of coins, and for medals, campaign stars, clasps and overseas bars.

## Press Room:

The number of dies used for each denomination and the average production of coins per pair of dies for the years 1947 and 1948 are shown in the table below:—

Denomina- tion	1947				1948			
	Number of Good Pieces Coined	Number of Dies Used		Pieces per Pair of Dies	Number of Good Pieces Coined	Number of Dies Used		Pieces per Pair of Dies
		Obv.	Rev.			Obv.	Rev.	
Dollar.....	65,595	11	17	4,685	39,915	9	6	5,322
50 cents....	424,885	8	5	65,367	76,217	3	3	25,406
25 cents....	1,524,554	32	29	49,985	6,958,362	189	247	31,919
10 cents....	4,431,926	136	111	35,886	10,061,534	240	223	43,462
5 cents....	7,603,724	99	93	79,205	11,405,913	120	144	86,408
1 cent.....	31,093,901	175	134	201,255	69,623,227	204	144	400,133
	45,144,585	461	389		98,165,168	765	767	
	Average per pair of dies.....106,222				Average per pair of dies..... 128,153			

In conjunction with the seven coining presses, two drop-hammers and two friction-presses were kept in continuous operation striking Campaign Stars, Medals, Clasps and Overseas Bars.

## Die and Medal Branch:

The total numbers of matrices, punches and dies engraved and prepared for coinage and medal work are shown below:—

	Obverse	Reverse
For Coinage, Matrices, Punches, Dies.....	923	964
For Medals, Campaign Star Dies.....	8	0
War, 1939/45 Dies.....	29	45
Defence of Britain Dies.....	87	99
Canadian Volunteer Service.....	59	73
Clasp Dies for C.V.S.M.....	8	10
Clasp Dies for War and Defence of Britain Medals.....	34	39
Overseas Bar Dies.....	13	12
Royal Canadian Mounted Police Dies.....	6	0
Governor-General's Medal Dies.....	1	1



Master Dies and Working Punches for the obverse of all denominations from the 1 cent to the \$1.00 were prepared at the Royal Mint, London, with the new inscription of His Majesty's title to be used in 1948 and subsequent years.

The inscription relating to the Royal Style and Title on the obverse of the Royal Canadian Mounted Police Medal was changed in accordance with the regulations, and a new master die was engraved by the Mint Engraver with the legend "GEORGIUS VI DEI GRATIA REX".

A master die for the clasps of the Defence of Britain and War Medals was also hand engraved by the Mint Engraver.

Seventy-nine R.C.M.P. Long Service and Good Conduct Medals were struck in 800 standard silver instead of fine silver, each mounted with clasp, and issued to the Commissioner of the Royal Canadian Mounted Police. The name of the recipient was engraved on the edge of each medal.

Two hundred and three Bronze Medals, 65 silver (800 standard) and 8 Gold Medals (silver gilt) 2-1/16" diameter were struck on the request of His Excellency the Viscount Alexander of Tunis, as the Governor-General's award to students of Canadian Universities attaining the highest academic standing.

In addition to the above the following gold and bronze medals were struck on behalf of various Institutes and Societies.

Professional Institute of the Civil Service of Canada—

One 14-carat gold, 2" diameter engraved with the name of E. W. Griffith, 1948.

Engineering Institute of Canada—10-carat gold medals—

One Gzowski Medal, engraved E. A. Allcut, 1947.

One Keefer Medal, engraved E. P. Muntz, 1947.

One Plummer Medal, engraved E. P. T. Bailey, 1947.

One Ross Medal, engraved J. A. Ouimet, 1947.

One Leonard Medal, engraved G. S. Hume, 1947.

One Julian C. Smith Medal, bronze, engraved Philip Louis Pratley.

One Julian C. Smith Medal, bronze, engraved Penrose Melvin Sauder.

Royal Society of Canada—

One Flavelle Medal, 14 carat, engraved Margaret Newton, 1948.

One Tyrrell Medal, fine gold, engraved Lionel Groulx, 1948.

Webster Memorial Trophy Competition—

One Good Airmanship Medal, bronze, engraved John H. Blackburn, 1948.

The Master Dies and Punches for the Defence of Britain Medal and the 1939/45 War Medal were received from the Royal Mint, London, during the current year. Arrangements were made immediately on the receipt of these dies to proceed with the manufacture of the War and Defence Medals, and clasps. The design of the Defence of Britain Medal shows, on the obverse: Uncrowned effigy of His Majesty with the inscription GEORGIUS VI D: G: BR: OMN: REX F: D: IND: IMP; on the reverse: The Imperial Crown over an oak tree defended by a lion and lioness, with the inscription "1939-1945" and "The Defence Medal". The artists are Mr. Henry Paget for the obverse and Mr. W. Parker for the reverse. The designs have been modelled in low relief to allow the medal to be struck on a coining press. The medal ribbon is attached by means of a plain bar with fixed clamp. Diameter of medal 1.42" diameter, struck in 800 standard silver. The ribbon is flame-coloured in the centre, and the edges are green; it has two black stripes.

The design of the "1939-1945" War Medal bears on the obverse: the Royal Effigy, crowned, with the inscription, GEORGIUS VI D: G: BR: OMN: REX ET INDIAE IMP; by the artist, Mr. Percy Metcalfe, and on the reverse: a lion standing wanton on the body of a double headed dragon, the two heads, an eagle's

and a dragon's, signify respectively the principal occidental and oriental enemies. The reverse was designed and modelled by Mr. E. Carter Preston. The War Medal has the same type of clasp as the Defence Medal, of the same diameter and metal. The ribbon is red, white and blue colours, with narrow red stripe on white in the centre.

### Mechanical and Electrical Branch:

With the continuous operation of the Coining Division on two and three shifts, the work of maintaining the machinery in good running order has become increasingly difficult, and was accomplished only by the ingenuity displayed by an efficient mechanical and electrical staff.

New devices of many kinds had to be designed and machined to provide the Medal Branch with tools to cut, trim, swedge and process the clasps and medals at a rapid pace. Many labour saving mechanical and electrical devices were designed and made with resultant economy of labour and cost, and effected definitely a speeding up of the output of medals and clasps.

In addition to the increased work on new installations, repairs, and maintenance due to the extended rush of coin and medal production, important research and development work was carried on in the field of High Frequency Induction and Dielectric Heating. Plans were completed and the construction of a model plant commenced, to endeavour to improve the present methods of annealing coin blanks.

A plating plant was designed, built and put into service for electro-plating copper and nickel on plaster cast models.

## ASSAY DIVISION

*Chief:* W. A. HAWKEY

The number of assays made in the Department from January 1 to December 31, 1948, was as follows:—

GOLD—		
Refinages.....	5,075	
Rough Gold.....	26,352	
Proof.....	2,762	
Parting Proofs.....	727	
Parting Buttons.....	9,742	
Miscellaneous.....	1,376	
	<hr/>	46,034
SILVER—		
Standard Bars.....	3,794	
Medal Bars.....	595	
Pyx.....	1,197	
Fine Silver.....	770	
Worn Coin Ingots.....	102	
Proof.....	1,039	
Miscellaneous.....	54	
	<hr/>	7,551
MISCELLANEOUS—		
Mint Residues (Sweeps, etc.).....	530	
For the Marking Act Inspector.....	81	
Nickel, Copper, etc.....	86	
	<hr/>	697
Total.....		<hr/> 54,282

The Mean Finenesses of the Silver Coinage struck in 1948 were as follows:—

Denomination	Standard Fineness	Mean Fineness
1 dollar.....	800·00	800·28
50 cents.....	800·00	799·24
25 cents.....	800·00	799·44
10 cents.....	800·00	799·54

During the year under review, 4,713 deposits were received in the Mint. The gross weight of this bullion was 4,252,389·454 oz. troy, and was comprised of the following:—

**FINE GOLD—**

285 deposits weighing 623,557·984 oz. of a mean fineness of 996·531.

**CRUDE BULLION—**

3,911 deposits; 3,486,627·150 oz. of an average fineness of 767·005 gold, 149·365 silver and containing 8·363% base metal.

**SCRAP (Jewellery and Dental)—**

319 deposits weighing 34,289·050 oz. of an average fineness of 545·123 gold and 94·300 silver.

**FROM VANCOUVER ASSAY OFFICE—**

198 ingots; 107,915·270 oz. gross at 812·167 gold and 154·249 silver.

Samples from 59 lots of nickel blanks (10,920,000 pieces) were assayed and found to satisfy specifications.

A number of medals and other articles were electro-plated for the Operative Department.

Two working trial plates, one each of gold and silver, were made and fixed against our standards.

Twenty-six ounces of fine gold was especially refined and assayed for the National Research Council.

Two and one-half ounces of Gold Proof and eight ounces of Silver Proof were sold.

A number of suspected counterfeit coins were examined and when necessary analyzed.

## REFINERY DIVISION

*Chief: C. J. MORRIS*

### Tellurium in Fine Silver:

In last year's annual report it was stated that an experimental furnace had been set up in the silver melting room and that a practicable method had been discovered of diminishing the tellurium and phosphorus content of our Fine Silver. This meant that the Refinery silver in future would be fit for coinage. Hitherto it had been too frangible for that purpose.

During the past nine months we have more than fulfilled our promise. Not only has all the incidental silver from Mint bullion been processed, but a total of 193,989·85 ounces of rejected fine silver has been rendered fit for coinage.

The average tellurium content has been reduced from 0.011 per cent to 0.003 per cent and nearly three quarters of a million ounces of useable fine silver has been delivered.

### **Gold and Silver Alloy Experiments:**

At the request of the Medal Department, a number of divergent fourteen-carat gold alloys were made and tested with the object of selecting one for the International Congress Mathematical medal for the University of Toronto. The strong relief of this medal makes it a particularly difficult one to strike and the fourteen-carat is the trickiest of all gold alloys to prepare, but a satisfactory alloy bar was finally produced.

In conjunction with the Medal Department, experiments were made to determine the minimum hardness which could be obtained with 800 silver under normal working conditions. The investigation confirmed the importance of uniform annealing at the correct temperature. The informative X-ray spectra of Sir W. H. Bragg show the reason for this. Such an alloy as our 800 silver is made up of a close filled lattice-work of the cubic pattern with units of single atoms and electronic bonds. When the metal is given an external stress such as rolling, the whole crystalline system is compressed without the bonds being broken and the result is a hardening of the metal. If now the alloy is heated in an annealing furnace the crystals expand, the lattice-work reforms, and when a certain temperature is reached the crystallization settles down in a regular geometrical pattern.

If, however, the metal is removed from the furnace at too low a temperature, say below 600° C. (1112° Fahr.) the whole micro-structure is in a transition state and an irregular blistering is the result. In these days of the higher physics, the metallurgist must learn to think sub-microscopically.

### **Improvement and Development:**

The fire-clay crucibles used by the Refinery for chlorination were formerly obtained from France, but the supply of these ceased when the Germans overran the country in 1940.

For nearly eight years, we were compelled to rely solely on one English firm for the supply of these pots for no Canadian Company was able to comply with the rigorous requirements of resistance to high pressure, high temperature, and the corrosive action of the flux. However, after many patient tests, a firm in Toronto has at last succeeded in manufacturing a crucible which satisfies all tests. Not only are they able to supply them at a lower cost, but we are also able to save on insurance, ocean freight, and railway transport.

The disposal of the recovery sweep has, since the War, presented rather a problem and the possibility of treating it ourselves has lately been considered. With this object in view, the help of the Mines Branch was solicited and their assistance, advice, and laboratory facilities have been much appreciated. The investigation is still proceeding.

A visit to the International Industrial Fair in Toronto resulted in plans being considered for the installation of a hydraulic tilter furnace to replace a manual tilter bought in 1916 and which is now not only out-of-date, but has pins so worn that it is lop-sided and precision in pouring is no longer possible.

Experiments have lately been carried out on the purification of silver chloride. Dilute sulphuric acid and iron plates are first used for the reduction, resulting in silver 990 fine. The residual copper is then leached out with ferric chloride, producing silver with a fineness of 999.9.

The ferric chloride is economically prepared by passing chlorine through the ferrous solution obtained by the reduction of the silver chloride with iron.



### Hydrogen Telluride:

The National Health Department during the year took atmospheric samples from different breathing points in the Refinery with the object of finding the content of tellurium, selenium, and arsenic. Hydrogen telluride was found in the air, and in certain parts of the Refinery such as the Cottrell precipitator, tellurium and arsenic were found in considerable proportions at the breathing level. However, no deleterious effect has been noted on the general health of the workers.

The following tables summarize the work done during the year:—

#### BULLION

Source	Number of Deposits	Fine Gold	Fine Silver
		Ounces	Ounces
Mines.....	4,193	3,295,654.559	485,912.43
Vancouver Assay Office.....	198	87,645.136	15,566.66
Miscellaneous.....	322	18,691.746	2,890.55

Refined and Delivered	Number	Gross Weight	Fine Weight	Average Assay
		Ounces	Ounces	
Fine Gold Bars.....	8,355	3,352,337.225	3,343,349.496	997.3
Granulated Gold.....		124,816.925	124,791.034	999.8
Fine Silver Bars.....	624	664,018.73	663,686.67	999.5
Granulated Silver.....		2,209.98	2,208.87	999.5

Received for Disposal	Sources	Gold Fine	Silver Fine	Platinum Fine
		Ounces	Ounces	Ounces
Granulated Gold.....	Mint Office	354.168		
Silver Medal Scrap.....	Mint Office		418.31	
Gold Medal Scrap.....	Mint Office	.272		
Silver Coin Scrap.....	Mint Office		479.49	
Jewellery Scrap.....	Various			.410

Special Processes	Number	Gross Weight	Silver Fine
		Ounces	Ounces
Re-melts.....	549	432,426.675	
Toughenings.....	13	6,359.725	
Sweeps.....	43	126,663.5 lbs. av.	
Chloride.....		71,370.0 lbs.	
Re-processed silver.....		186,308.47	186,215.36



## ASSAY OFFICE, VANCOUVER, B.C.

*Manager: F. R. MULFORD*

The sum of \$3,077,555.15 was disbursed for gold bullion purchases and the following shows source, weights, etc., of the deposits:—

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territory.....	259	76,001.45	60,580.178	12,416.27
British Columbia.....	240	30,198.72	25,712.697	2,739.20
Alberta.....	5	106.74	78.122	7.04
Saskatchewan.....	2	4.63	3.514	.31
North West Territory.....	6	323.99	263.988	32.87
Jewellery and Dental Scrap...	109	3,588.27	1,628.885	529.38
	621	110,223.80	88,267.384	15,725.07

## COMPARATIVE STATEMENTS

## (1) TOTALS FOR EACH YEAR UNDER ABOVE HEADINGS, 1940 TO 1948, INCLUSIVE:—

1940.....	2,224	219,976.14	175,301.091	31,822.17
1941.....	1,978	202,766.19	163,014.058	28,462.72
1942.....	1,460	183,738.18	147,517.917	26,422.54
1943.....	722	80,552.50	63,312.314	11,630.24
1944.....	577	48,983.87	37,679.028	7,649.55
1945.....	499	61,113.31	48,131.200	8,923.70
1946.....	603	85,071.57	67,325.255	12,923.84
1947.....	578	76,041.64	59,739.223	11,595.18
1948.....	621	110,223.80	88,267.384	15,725.07

## (2) TOTALS FOR EACH YEAR, 1940 TO 1948, INCLUSIVE, DISBURSED FOR GOLD BULLION PURCHASES:—

1940.....	\$6,685,353.07
1941.....	6,216,906.58
1942.....	5,628,080.26
1943.....	2,414,688.10
1944.....	1,436,665.86
1945.....	1,835,799.67
1946.....	2,406,170.90
1947.....	2,081,867.67
1948.....	3,077,555.15

The increase in the amount of gold received over previous year was due to greater production in both Yukon Territory and British Columbia. A further increase can be expected from B.C. sources during 1949, as a number of producers from U.S.A. have established or propose to establish operations on comparatively large scale in this province.

While the quantity of gold received during the year was not sufficient to keep the staff too busy, the erratic delivery of deposits caused situations to arise from time to time where extra effort was required by one or more individuals of the various departments in order that the work might be got out with promptitude and accuracy. I am glad to be able to report that such extra assistance was always rendered voluntarily when necessary.

Inter-departmental co-operation was also excellent.

## GENERAL

The annual stocktaking and inspection of the store of bullion and coin, as required by the Act establishing the Royal Canadian Mint, was conducted by officers of the Auditor General's Department in March.

The Assay Commissioners, Dr. J. Katzman of the Division of Physics, National Research Council, Mr. C. H. Bayley of the Division of Chemistry, National Research Council, and Mr. J. A. Fournier, Chief Chemist of the Metallic Minerals Division, Department of Mines and Resources, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1947 had been minted in accordance with the provisions of the said Act, were sworn in by His Honour, Judge A. G. McDougall, in the presence of Mr. G. E. Lowe as representative of the Department of Finance, on the fourth day of May, 1948.

The findings of the Assay Commissioners indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act.

Nine thousand, two hundred and twenty visitors were admitted to view the coining operations of the Mint during the year.

Through the courtesy of the National Film Board a number of films were shown for the entertainment of the staff during the Christmas season.

The number on the staff on December 31, 1948, was 344, the largest in the history of the Mint. Of the above number 21 were employed in the Administrative and Mint Office, 266 in the Coining and Medal Division, 14 in the Assay Division, 34 in the Refinery, and 9 in the Assay Office at Vancouver.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada since 1858.

I am, Sir,

Your obedient Servant,

W. C. RONSON,  
Master, Royal Canadian Mint.

## APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on January 2, 1908, to its disestablishment on November 30, 1931, and of the Royal Canadian Mint from December 1, 1931, to December 31, 1948.

Year	GOLD RECEIVED		GOLD ISSUED		Statutory Value Coin and Bullion
	Gross Weight	Statutory Value Gold only	Coin	Bullion	
	Ounces	\$	\$	Ounces Fine	\$
1908 to 1938.....	64,471,725.556	1,083,048,898.91	7,923,878.73	51,880,502.929	1,080,389,048.99
1939.....	6,181,336.290	100,656,105.55	.....	4,834,214.285	99,932,075.82
1940.....	6,295,218.554	103,169,970.38	30.00	5,026,792.728	103,913,055.43
1941.....	6,444,056.215	105,273,560.67	.....	5,134,347.805	106,136,385.78
1942.....	5,761,045.973	95,338,135.90	.....	4,611,892.227	95,336,270.79
1943.....	4,456,437.559	74,769,168.35	.....	3,645,739.964	75,364,131.92
1944.....	3,537,734.636	59,163,794.79	.....	2,829,755.000	58,496,226.17
1945.....	3,102,991.020	51,750,218.87	.....	2,499,163.674	51,662,297.22
1946.....	3,271,246.445	54,826,765.59	.....	2,665,964.763	55,110,381.61
1947.....	3,559,496.703	59,296,515.31	.....	2,859,084.218	59,102,514.80
1948.....	4,252,389.454	70,325,402.34	.....	3,405,073.335	70,389,111.41
	111,333,678.405	1,857,618,536.66	7,923,908.73	89,392,530.928	1,855,831,499.94









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CANADA

Government  
Publication

(DEPARTMENT OF FINANCE)

(ROYAL CANADIAN MINT)

Report  
For Calendar Year  
1949

OTTAWA  
EDMOND CLOUTIER, C.M.G., B.A., L.Ph.  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
CONTROLLER OF STATIONERY

1950









DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year  
1949

Published by Authority of Hon. D. C. ABBOTT, M.P.,  
Minister of Finance

OTTAWA  
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1950



# ROYAL CANADIAN MINT

OTTAWA, ONTARIO.

The Honourable,  
The Minister of Finance,  
OTTAWA, Ontario.

SIR:

I have the honour to submit the following report on the operations of the Royal Canadian Mint during the calendar year 1949.

## ADMINISTRATIVE AND MINT OFFICE

*Chief Administrative Officer* - A. P. Williams

### COINAGE

There was an increase of \$954,487.22 in the amount of coin issued during 1949 as compared with the previous year. A detailed statement of the issues by denominations for the years 1948 and 1949 is set out below:

Denomination	Coin Issued in	
	1948	1949
	\$	\$
SILVER COIN—		
1 dollar.....	29,956.00	641,840.00
50 cents.....	48,000.00	429,001.00
25 cents.....	1,732,000.00	1,966,000.50
10 cents.....	1,020,000.00	1,112,000.60
Total Silver.....	2,829,956.00	4,148,842.10
NICKEL COIN—		
5 cents.....	615,500.00	637,500.10
BRONZE COIN—		
1 cent.....	708,300.00	321,901.02
TOTAL.....	4,153,756.00	5,108,243.22
Representing.....	Number of Pieces	
	100,393,956	65,423,954

Distribution of the coin issued to the various Agencies of the Bank of Canada and Sundry Persons was as follows:

Agency	Silver				Nickel	Bronze
	Dollar \$	50 Cents \$	25 Cents \$	10 Cents \$	5 Cents \$	1 Cent \$
Calgary.....	26,000.00	16,000.00	182,000.00	70,000.00	51,500.00	32,800.00
Halifax.....	31,640.00	42,000.00	112,000.00	68,000.00	41,000.00	11,500.00
Montreal.....	142,000.00	26,000.00	406,000.00	192,000.00	110,000.00	70,000.00
Ottawa.....	59,860.00	3,000.00	114,000.00	86,000.00	29,500.00	17,200.00
Regina.....	20,000.00	18,000.00	88,000.00	74,000.00	26,000.00	33,300.00
St. John.....	14,000.00	4,000.00	52,000.00	28,000.00	18,000.00	1,500.00
Toronto.....	280,000.00	224,000.00	690,000.00	374,000.00	224,500.00	100,400.00
Vancouver.....	30,000.00	82,000.00	206,000.00	154,000.00	95,000.00	26,400.00
Winnipeg.....	34,000.00	14,000.00	116,000.00	66,000.00	42,000.00	28,800.00
Sundry Persons.....	4,340.00	1.00	0.50	0.60	0.10	1.02
Total.....	641,840.00	429,001.00	1,966,000.50	1,112,000.60	637,500.10	321,901.02

Worn and mutilated coin withdrawn from circulation:

	Withdrawn	Net Increase in Circulation
	\$	\$
Silver Coin.....	103,732.35	4,045,109.75
Nickel Coin—5 cents (mutilated only).....	1,274.40	636,225.70
Tombac Coin—5 cents.....	68,731.10	.....
Steel Coin—5 cents.....	465.80	.....
Bronze Coin.....	2,797.07	319,103.95

### GOLD BULLION

Five thousand four hundred and seventy-six deposits of gold bullion were received at the Mint during the year from Canadian Mining Companies, the Assay Office, Royal Canadian Mint, Vancouver, and sundry persons. The gross weight of the deposits amounted to 4,941,749 ounces, containing by assay 3,925,618 ounces fine gold and 592,053 ounces fine silver. The receipts show increases as compared with the year 1948 of 763 in the number of deposits, gross weight 689,360 ounces, gold content 523,627 ounces and fine silver 87,684 ounces.

The net value paid by cheque to depositors was \$136,604,846.15. In addition the amount of fine gold issued to depositors was 12,910.989 ounces with a statutory value of \$266,894.61.

Postage collected for the Postmaster General on deposits shipped by mail, postage collect, amounted to \$39,997.26.

Details of the origin of the bullion deposited at Vancouver and Ottawa are shown in the following table:

From Canadian Mines and Refineries	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
Ontario.....	2,911,608.803	2,355,921.056	310,697.77
Quebec.....	1,231,099.175	991,932.322	149,165.63
British Columbia.....	230,726.185	177,465.778	33,760.12
Manitoba.....	166,435.000	129,735.389	14,755.38
Yukon.....	104,046.815	81,970.512	18,018.01
Nova Scotia.....	141.725	64.378	3.28
North West Territories.....	270,513.120	174,735.261	63,178.75
Alberta and Saskatchewan.....	172.675	129.277	12.81
Total from Canadian Mines and Refineries.....	4,914,743.498	3,911,953.973	589,591.75
From Jewellery and Scrap.....	33,859.815	17,773.731	3,131.78
Foreign.....	7.075	6.419	0.45
GRAND TOTAL.....	4,948,610.388	3,929,734.123	592,723.98

The following table shows the disposition of the fine gold produced in various forms (trade bars, granulated gold, sweep, medals, etc.):

	Ounces Fine,
9,294 Trade Bars transferred to Exchange Fund Account of Minister of Finance and held in safe-keeping by Bank of Canada.....	3,720,845.811
Depositors—granulated.....	12,910.989
Sales to Manufacturers—granulated.....	124,389.252
Proof Plate for assay purposes.....	1.000
Medals, etc.....	13.972
Sweep.....	7,135.353
	<u>3,865,296.377</u>

This total shows an increase of 460,223.042 ounces fine as compared with the year 1948.

## COINAGE AND MEDAL DEPARTMENT

*Chief:* R. J. EDMUNDS

Although the demands\* for specie were considerably less than in 1948, the year 1949 was marked throughout by great pressure on the Coining Division and Medal Branch.

The number of good coins passed for issue was 66,980,996 of all denominations, compared with 98,165,168 pieces in 1948.

Even this figure may be considered an exceptional one, over prewar production, and completes a decade of intense activity in a plant equipped with only sufficient machinery and space to produce efficiently about half this number of coins working under normal conditions.

\* It will be noted that the actual production of coins in any given year may differ slightly from the number of coins issued for circulation during the year. There is usually a small but varying number of coins held in stock at year end.



In addition to the coinage, it was also necessary to concentrate every effort towards the completion of the striking and manufacture of the balance of war medals and campaign stars to be ready for distribution by September, 1949.

In order to meet the above demands for coins and medals, double shifts were in force in both the Coining Division and Medal Branch at the beginning of the year, continuing until September, and three shifts thereafter in the Rolling Annealing and Press Rooms.

The outstanding event of the entry of Newfoundland into Confederation was commemorated by the minting of a new silver dollar coin. Distribution began on June 24th, 1949, the first coins going to the people of the newly admitted Province of Newfoundland. There were 631,500 commemorative dollars struck during the year. It is anticipated that Newfoundland commemorative dollars will continue to be struck, dated 1949, as long as there is a demand for them.

The number of good coins, war medals and clasps, etc., and campaign stars produced during 1948 and 1949 are shown in the two following tables:—

#### COINAGE

CANADA	1948	1949
	Pieces	Pieces
SILVER, 800 FINE—		
1 dollar.....	39,915	631,500
50 cents.....	76,217	858,991
25 cents.....	6,958,362	7,988,830
10 cents.....	10,061,534	11,335,652
NICKEL, PURE—		
5 cents.....	11,405,913	13,037,090
BRONZE—		
1 cent.....	69,623,227	33,128,933
TOTAL.....	98,165,168	66,980,996

#### MEDALS AND CAMPAIGN STARS

Description	1948	1949
Canadian Volunteer Service Medals—		
800 and 925 fine silver.....	158,700	347,091
Clasps to Canadian Volunteer Service Medals—		
800 and 925 fine silver.....	150,021	232,195
Overseas bars to Canadian Volunteer Service Medals—		
800 and 925 fine silver.....	127,500	143,024
Defence of Britain Medals—		
800 fine silver.....		461,223
Clasps to Defence of Britain Medals—		
800 fine silver.....		461,223
1939-1945 War Medals—		
800 fine silver.....		1,063,395

# MEDALS AND CAMPAIGN STARS—*Concluded*

Description	1948	1949
Clasps to 1939-1945 War Medals— 800 fine silver.....		1,063,395
CAMPAIGN STARS (Bronze)—		
1939-45.....	107,132	88,155
France and Germany.....	91,095	91,400
Italy.....	73,898	
Africa.....	7,865	
Pacific.....		2,497

The figures shown in the 1949 column of above table were the balances required to complete the number of war medals, etc., requested by the Department of National Defence.

The total number of medals, stars and overseas bars executed at the Mint in the past four years for the Armed Forces, in respect of the War 1939-1945, were as follows:

Canadian Volunteer Service Medals.....	900,000
Defence of Britain Medals.....	460,000
War Medals 1939-1945.....	1,060,000
1939-1945 Campaign Stars.....	288,000
France and Germany Stars.....	250,000
Italy Stars.....	107,500
Atlantic Stars.....	40,000
Aircrew Europe Stars.....	12,000
Africa Stars.....	12,000
Burma Stars.....	10,250
Pacific Stars.....	5,200
TOTAL.....	3,144,950
Overseas Bars to Canadian Volunteer Service Medal.....	524,000
Second Award Bars to Campaign Stars.....	25,933

Extra medals and campaign stars were made in 1949 above the estimated requirements to meet any further demands.

Details of the weights of silver bullion, copper metal and other alloys used for casting coinage bars, bars rolled, blanks cut and good coins produced are summarized below:

## COINAGE

CANADA	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Ozs.
SILVER (800 fine)—				
1 dollar.....	1,775,015.90	1,505,657.00	681,619.01	474,305.80
50 cents.....	567,076.20	596,768.70	373,111.14	322,043.86
25 cents.....	2,578,413.40	2,401,155.30	1,594,429.87	1,497,954.50
10 cents.....	1,522,801.30	1,485,716.60	908,653.63	849,004.32
Total Silver.....	6,443,306.80	5,989,297.60	3,557,813.65	3,143,308.48
NICKEL—	Lbs.	Lbs.	Lbs.	Lbs.
5 cents.....				130,665.62
BRONZE—				
1 cent.....	378,609.00	361,505.13	240,240.00	236,320.00
	Short tons 410.2	Short tons 386.1	Short tons 242.1	Short tons 291.3

## MEDALS

CANADA	Bars Cast	Bars Rolled	Blanks Cut	Finished Medals
	Ozs.	Ozs.	Ozs.	Ozs.
SILVER (800 fine)				
Canadian Volunteer Service Medals.....	654,019.30	674,119.30	405,203.50	379,598.30
Defence of Britain Medals	826,481.50	856,786.50	553,297.64	521,181.99
1939-1945 War Medals.....	1,872,153.10	1,892,339.20	1,376,342.24	1,201,636.35
Overseas Bars.....	21,430.20	21,430.20	9,919.62	8,867.49
	3,374,084.10	3,444,675.20	2,344,763.00	2,111,284.13
CAMPAIGN STARS—	Lbs.	Lbs.	Lbs.	Lbs.
3 Stars.....	28,463.50	35,729.00	9,650.78	7,828.23
	Short tons 129.3	Short tons 136.0	Short tons 85.2	Short tons 76.3

**Melting House**

Additional melting work carried out consisted of 26,467.00 lbs. of tombac five-cent coin cast into tombac bars for conversion into one-cent pieces; 2,841.00 pounds of worn and mutilated bronze coin remelted into one-cent coinage bars and 500 pounds of tin melted for alloy purposes.

**Rolling Room**

In addition to the 522.1 tons of coinage and medal bars rolled to their various gauges, the following items were rolled for the Assay Division:

Silver Proof Plate.....	19.26 ozs.
Silver Bars.....	3,271.52 ozs.
Copper Bars.....	552.79 ozs.
Lead Bars.....	1,310.00 lbs.

**Cutting Room**

The silver discs, copper and lead blanks from the bars and fillets that were gauged in the Rolling Room, were cut out in the Cutting Room, and along with the clasp blanks, medals, campaign stars and overseas bars, made considerable extra work for this room.

**Annealing Room**

A second electric annealing furnace was brought into operation to work concurrently with the existing furnace, thus increasing the output of the Annealing Room. Also, another burnishing barrel was installed, resulting in greater production and better work.

**Press Room**

The table below shows the average number of coins struck per pair of dies in 1948 and 1949:

Denomi- nation	1948				1949				
	Number of Good Pieces Coined	Number of Dies Used		Pieces per pair of Dies	Number of Good Pieces Coined	Number of Dies Used		Pieces per pair of Dies	
		Obv.	Rev.			Obv.	Rev.		
\$1.....	39,915	9	6	5,322	631,500	48	94	8,894	
50 cents..	76,217	3	3	25,406	858,991	46	40	19,977	
25 cents..	6,958,362	189	247	31,919	7,988,830	187	204	40,864	
10 cents..	10,061,534	240	223	43,462	11,335,652	305	249	40,923	
5 cents..	11,405,913	120	144	86,408	13,037,090	231	202	60,217	
1 cent...	69,623,227	204	144	400,133	33,128,933	73	92	401,563	
	98,165,168	765	767		66,980,996	890	881		
	Average per pair of dies.....			128,153	Average per pair of dies.....75,642				

The two heavy coining presses struck the impressions on the Defence of Britain and War medals satisfactorily in one blow, and were able to keep the Medal Branch supplied with a sufficient number of medals to maintain an average of over 15,000 medals daily ready for assembling.

The drop hammers struck over 2,000,000 units during the first nine months of the year, consisting of clasps, overseas bars and campaign stars.

### Die and Medal Branch

The demands made upon this department greatly increased in the past few years, and show considerable expansion in variety and quantity of work undertaken.

The new Janvier reducing machine, with all the latest improvements, was received from Paris, France, and installed early in the year. This machine will be invaluable to the Mint in the reproduction of steel master dies from artists' models. It has already given most satisfactory results, engraving three-dimensional reproductions automatically in steel dies to the exact size and precise design of the coin or medal desired, from models sculptured by the Mint Engraver. Although the Mint Engraver is highly skilled in the art of hand engraving either in relief or intaglio, this method is extremely arduous on intricate designs. On occasions it will be necessary, however, when master dies will have to be cut directly in the steel by hand, in cases of expediency, or when only a single design is required. Excellent results can be obtained by either method, but the great advantage of the pantograph machine will be the ability to reproduce master dies either from models prepared by the original artist outside the Mint or from our own models made from approved sketches, or suggestions of motifs submitted in competition, of any desirable design.

The Die Department prepared the following matrices, punches and working dies for coinage and medal work during the year:

	Obv.	Rev.
FOR COINAGE—		
Matrices, Punches and Dies.....	1,057	1,216
FOR MEDALS, ETC.—		
1939-1945 War Medal Dies.....	84	99
Defence of Britain Medal Dies.....	9	21
War and Defence of Britain Medals Clasp Dies.....	140	130
Canadian Volunteer Service Medal Clasp Dies.....	58	55
Royal Canadian Mounted Police Clasp Dies.....	1	1
Canadian Army Long Service and Good Conduct Medal Dies.....	2	3



The reverse of the master die for the Newfoundland Commemorative Dollar coin was engraved by hand directly in the steel by the Mint Engraver.

The design depicts a three-masted vessel under full sail, representing John Cabot's ship the "MATTHEW"; motto below, "FLOREAT TERRA NOVA" (May Newfoundland flourish); above, the word "CANADA" and at the bottom, the figures "1949". The coin has a graining upon the edge. (See Plate No. 1).

The following Seals were also engraved by the Mint Engraver:

For the Secretary of State Department the Great Seal of Canada was altered in consequence of the change in His Majesty's Titles (1948) by the removal of the abbreviated words "IND IMP" and letters "F D", and the insertion of the words "FIDEI DEF". Instead of engraving an entirely new seal, which would have been a work of considerable magnitude, the above words in the inscription only were deleted on the seal and the space left blank. An electroplate of hard nickel was then made and the words "FIDEI DEF" were inserted in the blank space, without interfering with any other portion of the design. A counterseal was struck in copper from the new seal, and fitted to the seal press. (See Plate No. 2).

A seal  $2\frac{1}{4}$ " diameter was also engraved in steel for the Secretary of State Department, consisting of the modified shield of the Canadian Coat of Arms in the centre, surrounded by the words "SECRETARY OF STATE—SECRETAIRE D'ETAT—CANADA". A counter-seal was struck from the engraved seal and both fitted to a hand press.

At the request of the Premier of Prince Edward Island a new Great Seal for that Province was designed and engraved  $2\frac{3}{8}$ " diameter, with the Provincial Coat of Arms in the centre, and motto on riband below, "PARVA SUB INGENTI"; and surrounded by the inscription, "THE GREAT SEAL OF THE PROVINCE OF PRINCE EDWARD ISLAND". A counter-seal was also supplied and both were fitted to a suitable seal press.

Following the confederation of Newfoundland as the tenth province of Canada, a new seal and counter-seal was prepared here for the Lieutenant-Governor of the Province of Newfoundland. The seal was engraved with the Shield of the Provincial Arms, surmounted by the Elk, with the words "LIEUTENANT GOVERNOR" above and the word "NEWFOUNDLAND" below. It was made of steel  $1\frac{1}{2}$ " in diameter.

In connection with the Canada-Newfoundland ceremony at the Peace Tower on April 1st, 1949, the Prime Minister of Canada, the Right Honourable Louis St. Laurent used a maul turned at the Mint from Canadian Rock Maple for striking the first impression of the Newfoundland Coat of Arms on the stone tablet at the Peace Tower. A flat engraved plate of fine gold from Canadian mines was inscribed with the words "USED BY RIGHT HONOURABLE LOUIS St. LAURENT, PRIME MINISTER OF CANADA, TO INITIATE CARVING NEWFOUNDLAND ARMS AT PEACE TOWER—CEREMONIE UNION DE TERRE-NEUVE AU CANADA".

A small imprint die  $9/16$ " wide,  $15/16$ " long, was engraved in brass, consisting of the shield of the Canadian Coat of Arms—surmounted by the Crown, for use on the Newfoundland Dollar coin cases.

In addition to the War Service Medals and Campaign Stars struck in the Medal Branch during the year, there were a number of gold, silver and bronze medals struck for the Royal Canadian Mounted Police; His Excellency the Governor-General of Canada; The Royal Society of Canada; The Engineering Institute of Canada; The Professional Institute of the Civil Service of Canada; and the Webster Memorial Medal.







PLATE I



PLATE II



One hundred and one Royal Canadian Mounted Police Long Service and Good Conduct Medals in 800 silver were struck, each mounted with clasp, and the name of the recipient engraved on the edge of each medal. The clasps of the medal were redesigned and struck from the same dies as the clasp for the Defence of Britain and War Medals.

One hundred and ninety-eight Governor-General's bronze medals, sixty-seven silver (800 standard) and twelve gold medals (silver gilt) 2-1/16" diameter were struck on the request of His Excellency the Viscount Alexander of Tunis.

For the Royal Society of Canada, four medals were struck in 14 carat, 18 carat and fine gold—

One Flavelle Medal, 14 carat, engraved W. P. Thompson, 1949.

One Henry Marshall Tory Medal, 18 carat, engraved S. M. Coxeter, 1949.

One Willett G. Miller Medal, 18 carat, engraved H. V. Elsworth, 1949.

One Tyrrell Medal, fine gold, engraved R. G. Trotter, 1949.

For the Engineering Institute of Canada, seven medals were struck in bronze and 10 carat gold—

One Sir John Kennedy Medal, bronze, engraved Thomas Henry Hogg, 1948.

One Julian C. Smith Medal, bronze, engraved Randolph William Diamond, 1948.

One Leonard Medal, 10 carat, engraved Percy Thomas Bloomer, 1948.

One Plummer Medal, 10 carat, engraved G. O. P. Klotz, 1948.

One Keefer Medal, 10 carat, engraved J. D. Mollard, 1948.

One Ross Medal, 10 carat, engraved B. G. Ballard.

One Gzowski Medal, 10 carat, engraved A. W. Wilson Busby, 1948.

For the Professional Institute of the Civil Service of Canada, three 14 carat gold medals were struck.

For the Webster Memorial Trophy Competition, one Good Airmanship Medal was struck in bronze.

After an exhaustive search for over a year across Canada for young men with an aptitude for art and sculpture work, and who possessed the exceptional manual dexterity necessary to warrant training in the Mint as Engravers, two apprentice Engravers were engaged to work with the chief Engraver.

From the apparent scarcity of craftsmen competent to engrave designs for coins and medals directly into steel it would appear good policy to train young men of promise in the Mint workshops. The two appointed have already been of much assistance during the increased volume of die and medal work, and it is hoped they will eventually gain sufficient experience in the general principles of design and modelling, and in the operation of the pantograph machine to become expert Mint Engravers.

## MECHANICAL AND ELECTRICAL DEPARTMENTS

The increase of work in all branches of the Mint kept the mechanics and electricians fully occupied throughout the year.

Not only were many maintenance repairs made with despatch to keep the plant running smoothly, but many new installations of machinery parts and electrical apparatus were carried out, and tools designed and machined to provide the dies, punches, cutters and trimming tools necessary for coining and medal work.

An essential and major work performed during the year was the rebuilding of the outside transformer station, by the Department of Public Works. This was necessitated by the obsolescence of the station and the need to lessen the hazard



of fire and burn-outs and to meet the increased power requirements. It was also deemed necessary to be able to operate both annealing furnaces at the same time.

Under the supervision of the Electrical Superintendent, the automatic switching for the annealing furnaces was redesigned to permit concurrent operation of the two furnaces.

The direct current motors driving the cutting machines showed evidence of their great age and the insulation began to disintegrate beyond repair. A new 550 volt line was run into the cutting room and alternating current motors installed.

A new 12 volt, 250 ampere, selenium rectifier was purchased and installed for nickel and copper plating on plaster models for the reproduction of coinage and medal dies.

A recapitulation of the work performed by the Electrical Branch shows 154 trouble calls attended to, 51 fuse replacements made, 69 lamp changes, 4 complete rewinds of motors, 139 minor and major installations, 33 replacements of equipment that had become obsolete, 203 normal repairs due to wear and depreciation, 167 engineering changes and special parts built and 320 inspections and tests made as to drives and loads.

Under the supervision of the Mechanical Superintendent, two modern lathes were installed for coinage dies. The lathes are equipped with Thymotrol electronic drive for controlling the speed of the lathes, which is essential to the setting up and machining the dies.

A tilting tumbling barrel was fabricated of copper for burnishing blanks in the Annealing Room.

Three steel tanks, lined with special rubber were made for plating galvanos, and the room in which the new Janvier reducing machine is located was air-conditioned to maintain the proper temperature for the most efficient operation of this machine.

Six feed tables of improved design were machined of steel and fitted to the coining presses.

Number 1 blank cutting machine broke at the arch after many years of service, putting it out of commission. As another machine to replace it was not available for many months, a special effort was made to weld the break. This was successfully accomplished and it is again running satisfactorily.

At the conclusion of the medal work for the Department of National Defence, thirteen lathes, five polishers and seven drills were dismantled, and disposed of through War Assets Corporation.

The three 75 H.P. boilers were thoroughly cleaned and overhauled during the summer months and passed by the Inspector.

### **Miscellaneous:**

The National Film Board entertained the entire staff of the Mint at Christmas time.

The total number of persons employed by the Coining and Medal Division reached the peak of 318 in May, including 20 women engaged on the inspection and packing medals and stars. After the medal work was completed in September, 58 were released from further service here and as many as possible were absorbed by other government departments. By resignations to take up other fields of work, a further decrease in the staff towards the end of the year left the total number employed at 212.

The work on war medals and stars and the making of tools required demanded a very high degree of accuracy and care. It is but fitting to express satisfaction and appreciation of the efficient manner and despatch in which the entire staff, both permanent and temporary, devoted themselves to this service throughout a strenuous period.

## ASSAY DIVISION

Chief - W. A. HAWKEY

The number of assays made in the department from 1st January to 31st December, 1949, was as follows:—

GOLD—		
Refinages.....	5,469	
Rough Gold.....	31,247	
Proofs.....	3,069	
Parting Proofs.....	794	
Parting Buttons.....	11,335	
Miscellaneous.....	1,552	
		53,466
SILVER—		
Standard Bars.....	6,610	
Medal Bars.....	5,586	
Pyx.....	1,910	
Proofs.....	1,378	
Fine Silvers.....	1,061	
Miscellaneous.....	495	
		17,040
MISCELLANEOUS—		
Mint Residues (Sweep, etc.).....	566	
For the Marking Act Inspector.....	4	
Nickels, Coppers, etc.....	98	
		668
TOTAL.....		71,174

The Mean Finenesses of the Silver Coinage struck in 1949 were as follows:—

Denomination	Standard Fineness	Mean Fineness
1 dollar.....	800·00	800·26
50 cents.....	800·00	799·20
25 cents.....	800·00	799·47
10 cents.....	800·00	799·51

The post war upward trend in the receipt of gold-silver bullion continued through 1949, an increase of approximately 16% over the preceding twelve months being registered. Altogether 5,476 deposits, weighing 4,941,748·248 oz. troy, were received and comprised the following:

### FINE GOLD—

302 deposits weighing 680,765·478 oz. of a mean fineness of 996·702.

### CRUDE BULLION—

4,616 deposits—4,101,967·300 oz. of an average fineness of 762·383 gold, 148·838 silver and containing 8·8779% base metal.

### SCRAP (Jewellery and Dental)—

337 deposits weighing 30,720·300 oz. of an average fineness of 534·453 gold and 96·295 silver.

### FROM VANCOUVER ASSAY OFFICE—

221 ingots—128,296·17 oz. gross at 805·999 gold and 165·059 silver.

Samples from 68 lots of nickel blanks (13,600,000 pieces) were assayed and found to satisfy specifications.

Two working trial plates, one each of gold and silver, were made and fixed against our standards.

One ounce of Gold Proof Plate was sold.

A number of medals and other articles were gold plated for the Coinage Division.

Several suspected counterfeit coins were examined and, where necessary, assayed.

## REFINERY DIVISION

*Chief - C. J. MORRIS*

### Treatment of Sweep

With the help of the Mines branch, experiments were carried out to discover if a plant could be erected at the Mint for the recovery and refining of the gold and silver contained in the sweep. The conclusion was finally reached that it is far more economical to sell it to a smelter, because our very heterogeneous sweep contains such large amounts of material other than gold and silver, that it cannot be treated directly by pyrometallurgical processes.

The large, well-equipped customs plants, in purchasing a great number of ores (calcareous, ferruginous, siliceous, etc.) often find in one ore, the fluxing constituents for another, whereas if the Mint treated the sweep, such fluxing materials as litharge would have to be especially purchased at high cost. Furthermore, we could only extract the principal metals, whereas a smelter can make a profit out of by-products.

The process whereby the valuable constituents are concentrated into a smaller bulk and the worthless ones discarded as waste or tailings, would take up far more than our available space and the beneficiation would entail still further cost as the concentrate must be smelted eventually.

### Induction Melting

High frequency equipment has now been obtained by the Refinery and will shortly be installed for the pre-melting of gold bullion. A water-cooled motor generator set with its capacitor bank assembly, motor-starting equipment and power units, will be placed directly under the melting house in what is now the men's kitchen and dining room. A new and modern dining room is to be erected on the premises recently vacated by the Medal Department.

In addition to the lift coil and nest furnaces operated by the motor generator, a twenty kilowatt spark gap frequency converter will also be installed to deal with deposits weighing not more than 850 ounces troy. As the action of the electromagnetic forces on a molten metal charge keeps the metal in circulation, it is hoped to cut down the time and labour due to re-melts because of the greater homogeneity which will now be possible. Because the metal melts so rapidly, with little chance for oxidation, base metal melting loss should also be somewhat reduced. This will, undoubtedly, find favour with the mines and other depositors.

### Granulated Gold

There has lately been a greatly increased demand for fine gold for jewellery manufacturing purposes. During the months of November and December, a total of 45,691.54 ounces of gold of a fineness between 999.0 and 999.9 was supplied by the Refinery, whereas the granulated gold produced for the whole of 1948 was 124,816.925 ounces, an increase at the rate of 119.64% per annum.

The following table shows the work done during the year.

### BULLION

Source	Number of Deposits	Fine Gold	Fine Silver
		Ozs.	Ozs.
Mines.....	4,918	3,805,799.048	569,508.69
Vancouver Assay Office.....	221	103,406.541	19,893.44
Miscellaneous.....	337	16,412.132	2,650.56

Refined and Delivered	Number	Gross Weight	Fine Weight	Average Assay
Fine Gold Bars.....	9,417	3,779,307.279	3,769,338.334	997.4
Granulated Gold.....		139,842.525	139,808.390	999.8
Fine Silver Bars.....	700	789,948.63	789,550.40	999.5
Granulated Silver.....		4,292.40	4,290.25	999.5

Received for Disposal	Source	Gold Fine	Silver Fine
Granulated Gold.....	Mint Office.....	285.346	
Gold Medal Scrap.....	Mint Office.....	13.725	
Granulated Silver.....	Mint Office.....		99.95
Silver Medal Scrap.....	Mint Office.....		537.43
Silver Coin Scrap.....	Mint Office.....		150.24
Silver Scrap.....	Mint Office.....		4.78
Gold Plate Scrap.....	Mint Office.....	.957	

Special Processes	Number	Gross Weight	Silver Fine
Re-melts.....	613	493,048.250	
Toughenings.....	18	9,649.825	
Sweeps.....		153,457.0 lbs. av.	
Chloride Reduction.....		80,412.0 lbs. av.	
Re-processed Silver.....		227,935.38	227,821.45

NOTE: Weights in ounces troy, unless otherwise shown.



# ASSAY OFFICE, VANCOUVER, B.C.

Manager - F. R. MULFORD

The sum of \$3,903,665.49 was disbursed for gold bullion purchases and the following shows source, weights, etc. of the deposits:—

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territory.....	296	104,044.34	81,968.384	18,017.71
British Columbia.....	277	27,586.11	23,929.199	2,038.58
Alberta.....	9	150.75	115.133	11.43
Saskatchewan.....	4	10.10	7.922	.68
North West Territory.....	2	219.42	140.706	15.11
Jewellery and Dental Scrap.	120	3,146.59	1,361.599	481.22
	708	135,157.31	107,522.943	20,564.73

## COMPARATIVE STATEMENTS

(1) TOTALS FOR EACH YEAR UNDER ABOVE HEADINGS, 1941 TO 1949 INCLUSIVE:—

1941.....	1,978	202,766.19	163,014.058	28,462.72
1942.....	1,460	183,738.18	147,517.917	26,422.54
1943.....	722	80,552.50	63,312.314	11,630.24
1944.....	577	48,983.87	37,679.028	7,649.55
1945.....	499	61,113.31	48,131.200	8,923.70
1946.....	603	85,071.57	67,325.255	12,923.84
1947.....	578	76,041.64	59,739.223	11,595.18
1948.....	621	110,223.80	88,267.384	15,725.07
1949.....	708	135,157.31	107,522.943	20,564.73

(2) TOTALS FOR EACH YEAR, 1941 TO 1949 INCLUSIVE, DISBURSED FOR GOLD BULLION PURCHASES:—

1941.....	\$6,216,906.58
1942.....	5,628,080.26
1943.....	2,414,688.10
1944.....	1,436,665.86
1945.....	1,835,799.67
1946.....	2,406,170.90
1947.....	2,081,867.67
1948.....	3,077,555.15
1949.....	3,903,665.49

An increase is noted in the amount of gold received over the previous year. Indications are that the upward trend will continue during the coming season.

The co-operation by all members of the staff has been excellent.

## GENERAL

Speedy delivery of the medals required by the Department of National Defence for those who served in World War II, made necessary the curtailment of the annual stocktaking and inspection of the silver, nickel and bronze metals



and coin held in the Mint at the end of the fiscal year. However, stocktaking of all gold bullion in the Mint was undertaken by officers of the Auditor General's Department.

The Assay Commissioners, Mr. W. E. K. Middleton of the Division of Physics, National Research Council, Dr. E. L. Tollefson of the Division of Chemistry, National Research Council, and Mr. R. A. Rogers of the Minerals Dressing and Metallurgy Division, Bureau of Mines, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1948 had been minted in accordance with the provisions of the said Act, were sworn in by His Honour, Judge A. G. McDougall, on the 5th day of May, 1949.

The findings of the Assay Commissioners indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act.

Thirteen thousand, nine hundred and forty-one visitors were admitted to view the coining operations of the Mint during the year.

The number on the staff on 31st December, 1949, was 297. Of this number 26 were employed in the Administrative and Mint Office, 212 in the Coining and Medal Division, 16 in the Assay Division, 35 in the Refinery, and 8 in the Assay Office at Vancouver.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada since 1858.

I am, Sir,

Your obedient Servant,

W. C. RONSON,  
Master, Royal Canadian Mint.

## APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on January 2, 1908, to its disestablishment on November 30, 1931, and of the Royal Canadian Mint from December 1, 1931, to December 31, 1949.

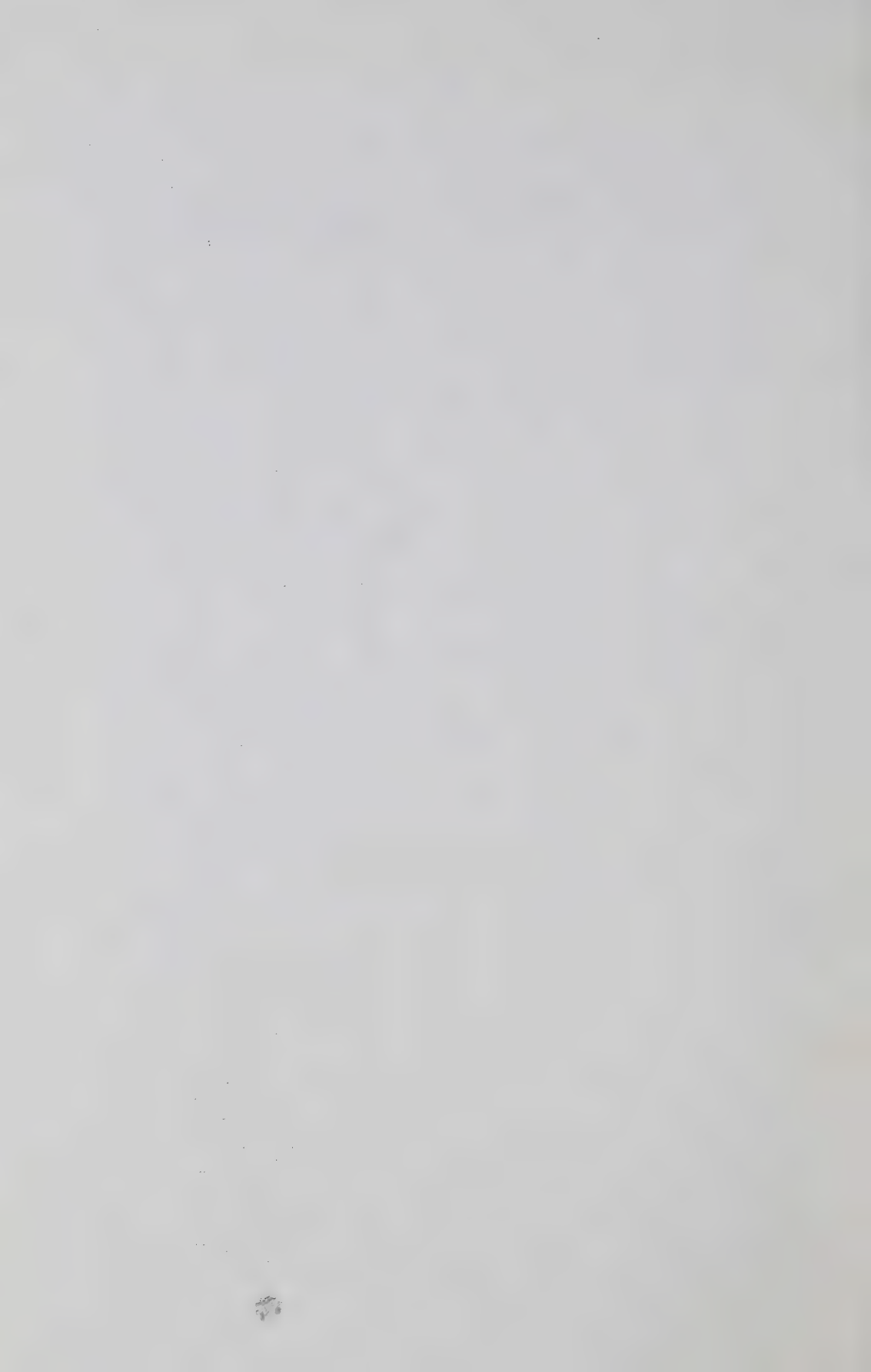
Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Statutory Value Gold only	Coin	Bullion	Statutory Value Coin and Bullion
	Ounces	\$	\$	Ounces Fine	\$
1908 to 1939.....	70,653,061.846	1,183,705,004.46	7,923,878.73	56,714,717.214	1,180,321,124.81
1940.....	6,295,218.554	103,169,970.38	30.00	5,026,792.728	103,913,055.43
1941.....	6,444,056.215	105,273,560.67	.....	5,134,347.805	106,136,385.78
1942.....	5,761,045.973	95,338,135.90	.....	4,611,892.227	95,336,270.79
1943.....	4,456,437.559	74,769,168.35	.....	3,645,739.964	75,364,131.92
1944.....	3,537,734.636	59,163,794.79	.....	2,829,755.000	58,496,226.17
1945.....	3,102,991.020	51,750,218.87	.....	2,499,163.674	51,662,297.22
1946.....	3,271,246.445	54,826,765.59	.....	2,665,964.763	55,110,381.61
1947.....	3,559,496.703	59,296,515.31	.....	2,859,084.218	59,102,514.80
1948.....	4,252,389.454	70,325,402.34	.....	3,405,073.335	70,389,111.41
1949.....	4,941,749.248	81,149,717.63	.....	3,865,296.377	79,902,766.08
	116,275,427.653	1,938,768,254.29	7,923,908.73	93,257,827.305	1,935,734,266.02

# APPENDIX B COIN ISSUED IN CANADA

		SILVER										NICKEL	TOMBAC	STEEL	BRONZE			
		Dollar \$	50c. \$	25c. \$	20c. \$	10c. \$	5c. \$	Total Silver \$	5c. \$			5c. \$	5c. \$	1c. \$	½c. \$			
1858 to 1907	New Brunswick, 1861, 2 and 4 Nova Scotia, 1861, 2 and 4, Prince Edward Island, 1871, Rest of Canada, 1858 - 1907 Totals				60,000	25,000	10,000	95,000						20,000	1,114			
														26,000	4,000			
														10,000				
			1,249,018	5,094,978	150,000	3,040,000	2,926,000	12,459,996						803,315				
			1,249,018	5,094,978	210,000	3,065,000	2,936,000	12,554,996						859,315	5,114			
		GOLD																
1908 to 1949	Sover- eigns £	\$10 \$	\$5 \$															
		3,153,948	12,083,919	34,402,703.50	210,000	21,716,444.60	6,020,802	77,587,817.10	6,793,275.60	1,407,824.50	1,521,300	9,619,222.02	5,114					

\* Of this amount \$15,000 returned in 1940.

† This coin struck in 1943.



Government  
Publications





~~Gov. Doc~~  
~~C2~~  
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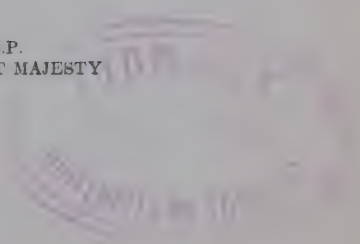


(DEPARTMENT OF FINANCE)

~~Canada~~ ROYAL CANADIAN MINT

Report  
For Calendar Year  
1950

OTTAWA  
EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY  
CONTROLLER OF STATIONERY  
1951







CANADA

DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year

1950

Published by Authority of Hon. D. C. ABBOTT, M.P.  
Minister of Finance

OTTAWA  
EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
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# ROYAL CANADIAN MINT

OTTAWA, ONTARIO.

The Honourable,  
The Minister of Finance,  
OTTAWA, Ontario.

SIR:

I have the honour to submit the following report on the operations of the Royal Canadian Mint during the calendar year 1950.

## COMMEMORATIVE NICKEL COIN

Early in 1950 the Honourable Douglas Abbott, Minister of Finance, extended an invitation to artists and sculptors in Canada to submit designs for a new reverse for the five-cent coin for issue in the year 1951. This coin was to commemorate the two hundredth anniversary of the isolation and naming of the metal "NICKEL".

As Mr. Abbott stated: "It is particularly appropriate that Canada should thus seek to commemorate this important anniversary in the history of the metal nickel. While it was a Swedish scientist who first succeeded in isolating nickel from its ores, nevertheless during the past fifty years the metal has become predominantly a Canadian metal. Since the beginning of the century, the world has been primarily dependent upon Canada for its supplies of nickel. Today Canada produces nearly ninety per cent of the world's supply and consumes only about five per cent of her own production.

It was because nickel was essentially a Canadian metal that the Canadian Government in 1920 ceased coining the old silver five-cent piece which was inconvenient because of its very small size, and began to coin instead a large five-cent piece out of pure nickel. I do hope that as a result of this competition, one of our Canadian artists or sculptors will be able to provide for us a new and distinctively Canadian design for our nickel coin".

The Board of Judges appointed by the Minister to pass on the designs submitted was composed of Mr. W. C. Ronson, Master of the Mint, Chairman of the Board, and members Dr. Charles A. Camsell, former Deputy Minister of Mines and Resources; Mr. Jean Chauvin, Montreal, Trustee of the National Gallery of Canada; Dr. W. C. Clark, Deputy Minister of Finance; Mr. Edouard Fiset, Ottawa; Mr. H. O. McCurry, Director of the National Gallery of Canada; Mr. Vincent Massey, Toronto, Chairman of the Board of Trustees of the National Gallery of Canada and of the Royal Commission on National Development in the Arts, Letters and Sciences; Miss Anne Savage, artist, Montreal; and Mr. G. F. Towers, Governor, Bank of Canada.

The Government offered a prize of one thousand dollars to the artist who submitted the design accepted and upon completion of the plaster model. Four additional prizes of two hundred and fifty dollars each were to be given for those receiving honourable mention.

Approximately ten thousand sketches, models and suggestions were received, from which the design submitted by Mr. Stephen Trenka, Thornhill, Ontario, was selected by the Board as being the most suitable and appropriate.

Mr. Trenka's design for the reverse impression is a representation of a nickel refinery, with the word "CANADA" at the top; the word "NICKEL" and the figures "1751-1951" at the upper left. The figure "5" and the word "CENTS" appear at the upper right. At the bottom are three maple leaves. The new coin is twelve sided, with a plain edge and will be struck during the calendar year 1951 only. (See Plate I.)

Four Canadians who received honourable mention from the Board of Judges and awarded prizes of two hundred and fifty dollars each were:

Norman D. Storey, 187 Ennerdale Road, Toronto, Ontario, with a design representing the Canada Goose.

Charles F. Comfort, 165 Crescent Road, Toronto, Ontario, with a design based on a cluster of maple keys (seed pods).

Fritz Brandtner, 5545 Cote St. Luc Road, Montreal, Quebec, whose design is centered around a head of grain.

Steven Myer, 6070 Sherbrooke Street West, and Sidney Massari, 3251 St. Antoine Street, Montreal, Quebec, who in co-operation submitted a design representing a nickel mill.

At a ceremony held in the Mint on 18th December, 1950, the Honourable the Minister of Finance struck the first coin of the new design in the presence of Canadian Government officials, representatives of the International Nickel Company of Canada, Limited; Falconbridge Nickel Company, Limited; and a number of invited guests including Mr. Trenka, the designer of the coin.

Production of the coin in large numbers was immediately undertaken in order that quantities might be shipped and available for issue in all parts of Canada by the 1st January, 1951.

## EXTENSION TO MINT PREMISES

During the year a study was completed of the proposed extension to the Mint premises. Lack of space and insufficient equipment to meet the heavy demands of recent years for coins and medals, had necessitated overtime and multiple shifts. Accordingly plans were drawn up for a new building with sufficient floor space for the installation of new equipment and for the redesigning of existing machines to increase the output of coins to 100,000,000 pieces yearly during normal working periods.

Construction of the building is proceeding satisfactorily and will be completed during 1952. Arrangements are being made for the modernization of equipment and improvement of production methods.

## ADMINISTRATIVE AND MINT OFFICE

Chief Administrative Officer—A. P. WILLIAMS

## COINAGE

There was an increase of \$1,781,075.66 in the amount of coin issued during 1950 as compared with the previous year. A detailed statement of the issues by denomination for the years 1949 and 1950 is set out below:

Denomination	Coin Issued in				
	1949	1950			1950
		Dated 1949	Dated 1950	Dated 1951	Total
	\$	\$	\$	\$	\$
SILVER COIN—					
1 dollar.....	641,840.00	39,362.00	260,351.00	.....	299,713.00
50 cents.....	429,001.00	1,393.50	1,152,660.50	.....	1,154,054.00
25 cents.....	1,966,000.50	39,234.75	2,354,792.25	.....	2,394,027.00
10 cents.....	1,112,000.60	27,266.10	1,766,745.30	.....	1,794,011.40
Total Silver....	4,148,842.10	107,256.35	5,534,549.05	.....	5,641,805.40
NICKEL COIN—					
5 cents.....	637,500.10	14,447.05	591,563.35	34,500.00	640,510.40
BRONZE COIN—					
1 cent.....	321,901.02	11,057.51	595,945.57	.....	607,003.08
Total.....	5,108,243.22	132,760.91	6,722,057.97	34,500.00	6,889,318.88
Representing...	Number of Pieces				
		1,866,441	101,078,118	690,000	
Total.....	65,423,594	103,634,559		.....	103,634,559

Distribution of the coin issued to the various Agencies of the Bank of Canada and Sundry Persons was as follows:

Agency	Silver				Nickel	Bronze
	Dollar	50 Cents	25 Cents	10 Cents	5 Cents	1 Cent
	\$	\$	\$	\$	\$	\$
Calgary.....	16,000.00	56,000.00	242,000.00	122,000.00	56,000.00	34,000.00
Halifax.....	4,000.00	58,000.00	120,000.00	78,000.00	36,000.00	19,000.00
Montreal.....	50,000.00	14,000.00	780,000.00	378,000.00	100,500.00	129,800.00
Ottawa.....	26,500.00	66,000.00	138,000.00	82,000.00	32,500.00	23,100.00
Ottawa for Charlottetown.....		2,000.00	4,000.00	.....	3,000.00	2,100.00
Ottawa for St. John's, Nfld.....		14,000.00	12,000.00	12,000.00	20,500.00	15,000.00
Regina.....	4,000.00	42,000.00	100,000.00	64,000.00	5,500.00	29,000.00
St. John, N.B.....	3,000.00	8,000.00	90,000.00	56,000.00	21,500.00	33,500.00
Toronto.....	158,000.00	664,000.00	726,000.00	612,000.00	292,000.00	243,500.00
Vancouver.....	14,000.00	230,000.00	56,000.00	340,000.00	62,000.00	51,000.00
Winnipeg.....	18,000.00	.....	126,000.00	50,000.00	11,000.00	27,000.00
Sundry Persons..	6,213.00	54.00	27.00	11.40	10.40	3.08
TOTAL.....	299,713.00	1,154,054.00	2,394,027.00	1,794,011.40	640,510.40	607,003.08

## Worn and mutilated coin withdrawn from circulation:

	Withdrawn	Net Increase in Circulation
	\$	\$
Silver Coin.....	42,831.65	5,598,973.75
Nickel Coin—5 cents (mutilated only).....	1,152.80	639,357.60
Tombac Coin—5 cents.....	39,893.05	.....
Steel Coin—5 cents.....	323.85	.....
Bronze Coin.....	2,185.07	604,818.01

## GOLD BULLION

Five thousand nine hundred and twenty-three deposits of gold bullion were received at the Mint during the year from Canadian Mining Companies, the Assay Office, Royal Canadian Mint, Vancouver, and sundry persons. The gross weight of the deposits amounted to 5,485,957 ounces, containing by assay 4,422,968 ounces fine gold and 651,228 ounces fine silver. The receipts show increases as compared with the year 1949 of 447 in the number of deposits, gross weight 544,208 ounces, gold content 497,350 ounces and fine silver 59,175 ounces.

The net value paid by cheque to depositors was \$162,108,013.68. In addition the amount of fine gold issued to depositors was 14,879.740 ounces with a statutory value of \$307,592.07.

Postage collected for the Postmaster General on deposits shipped by mail, postage collect, amounted to \$40,804.18.

Details of the origin of the bullion deposited at Vancouver and Ottawa are shown in the following table:

From Canadian Mines and Refineries	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
Ontario.....	3,210,825.741	2,622,489.212	350,140.21
Quebec.....	1,395,290.350	1,142,778.349	165,377.28
British Columbia.....	226,233.525	178,288.390	29,605.37
Manitoba.....	203,181.250	160,406.740	17,822.26
Yukon.....	117,964.595	93,339.068	20,423.96
Nova Scotia.....	69.575	65.484	2.16
North West Territories.....	286,295.650	198,711.835	62,303.61
Alberta and Saskatchewan.....	201.160	152.035	14.02
Total from Canadian Mines and Refineries.....	5,440,061.846	4,396,231.113	645,688.87
From Jewellery and Scrap.....	41,161.265	21,489.063	4,052.73
Foreign.....			
GRAND TOTAL.....	5,481,223.111	4,417,720.176	649,741.60



The following table shows the disposition of the fine gold produced in various forms (trade bars, granulated gold, sweep, medals, etc.):

	Ounces Fine
10,285 Trade Bars transferred to Exchange Fund Account of Minister of Finance and held in safe-keeping by Bank of Canada.....	4,111,868.015
Depositors—granulated.....	14,879.740
Sales to Manufacturers—granulated.....	207,731.986
Proof Plate for assay purposes.....	4.000
Medals, etc.....	10.895
Sweep.....	13,467.262
	<hr/> 4,347,961.898 <hr/>

This total shows an increase of 482,665.521 ounces fine as compared with the year 1949.

## COINAGE AND MEDAL DEPARTMENT

Chief: R. J. EDMUNDS

The number of coins executed during the year 1950 again exceeded 100,000,000 pieces of all denominations. One-cent coins accounted for 60% of the total, and were almost double the output of 1949. There was also a very considerable increase in the production of 50c, 25c and 10c denominations.

It was quite apparent early in the year that coinage requirements would be difficult to cope with. Two shifts were immediately put into effect, rolling, blanking and coining to accumulate a reserve of blanks and coins which would be available for issue when demands for coinage became urgent.

In addition, the methods of processing were improved to speed up production with faster motors, more rapid edge-marking of the blanks and increased strokes per minute on the coining presses. By these measures a stock of over 39,000,000 blanks and coins was built up by June 30th. However, even this reserve was quite inadequate to meet all requisitions, and recourse was had to overtime and multiple shift work.

Production of Canadian coins totalled 103,297,527 pieces with a value of \$6,932,437.97. The gross weight of the coins was 425.3 tons, with silver coins consuming 117.1 tons, (3,416,018 ounces fine) of silver; minor coins and alloys consuming 240.6 tons copper, 63.3 tons nickel, 3.3 tons zinc and 1 ton of tin.

The following table sets out by denominations the number of coins produced in 1949 and 1950:—

CANADA	1949	1950
	Pieces	Pieces
SILVER, 800 FINE—		
1 dollar (1950 figure includes 40,718 coins dated 1949)....	631,500	301,720
50 cents.....	858,991	2,384,179
25 cents.....	7,988,830	9,673,335
10 cents (1950 figure includes 520 coins dated 1949).....	11,335,652	17,823,595
NICKEL, PURE—		
5 cents (1950 figure includes 699,186 coins dated 1951)...	13,037,090	12,669,706
BRONZE—		
1 cent.....	33,128,933	60,444,992
TOTAL.....	66,980,996	103,297,527



Details of the weights of silver bullion, copper metal and other alloys used for casting coinage bars, bars rolled, blanks cut and good coins produced are summarized below:—

## COINAGE

CANADA	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Ozs.
SILVER (800 fine)—				
1 dollar.....	759,761.90	691,958.20	320,287.01	226,667.00
50 cents.....	1,643,066.10	1,680,696.80	1,024,855.04	893,598.22
25 cents.....	2,819,951.60	3,030,012.00	2,015,824.60	1,814,255.57
10 cents.....	2,221,557.73	2,212,912.13	1,430,483.21	1,335,502.02
Total Silver.....	7,444,337.33	7,615,579.13	4,791,449.86	4,270,022.81
	Lbs.	Lbs.	Lbs.	Lbs.
NICKEL—				
5 cents.....				126,699.12
BRONZE—				
1 cent.....	706,732.00	685,459.54	458,274.75	431,200.00
	Short tons	Short tons	Short tons	Short tons
	608.5	603.8	393.4	425.3

## MELTING HOUSE

In addition to the 608.5 tons of coinage bars cast there were 55,695.65 ounces of silver bars, 800 fine, for the Canadian Forces Decoration Medals, and 800 ounces silver, 925 fine, for the Art Directors Club Medals. Also 29,820.75 ounces of worn and mutilated silver coins were redeemed and cast into ingots for conversion into coinage bars, 800 fine, and 3,034 pounds of tin cast into convenient slabs for weighing one-cent alloy. The 5-cent tombac worn coin melted amounted to 6,582.66 pounds, and the 1-cent bronze coin melted amounted to 1,968.78 pounds. Both of these were converted into 1-cent coinage bars.

## ROLLING ROOM

Extra rolling consisted of the following:

1. For the Canadian Forces Decoration Medal Account 32,916.03 ounces.
2. For the Assay Department, 5,250 ounces of fine silver for 2½, 10 and 26 grain discs; 103.78 ounces fine gold proof plate; and 1,400 pounds of lead.

## CUTTING ROOM

A 20-ton power punch press was installed to cut large coin and medal blanks. It will also be capable of cutting 900 blanks a minute compared with the smaller presses cutting 450 to 540 pieces per minute. Additional work consisted of cutting 9,817 ounces of blanks for Canadian Forces Decoration Medals, and silver discs for the Assay Office.

## PRESS ROOM

The number of dies used for each denomination and the average production of coins for each pair of dies for the years 1949 and 1950 are shown in the table below:—

Denomination	1949				1950			
	Number of Good Pieces Coined	Number of Dies used		Pieces per pair of Dies	Number of Good Pieces Coined	Number of Dies Used		Pieces per pair of Dies
		Obverse	Reverse			Obverse	Reverse	
\$1.....	631,500	48	94	8,894	301,720	69	52	4,987
50 cents..	858,991	46	40	19,977	2,384,179	87	40	37,546
25 cents..	7,988,830	187	204	40,864	9,673,335	222	200	45,845
10 cents..	11,335,652	305	249	40,923	17,823,595	628	418	34,080
5 cents..	13,037,090	231	202	60,217	12,669,706	177	100	91,478
1 cent...	33,128,933	73	92	401,563	60,444,992	166	150	352,563
	66,980,996	890	881		103,297,527	1349	960	
	Average per pair of dies..... 75,642				Average per pair of dies..... 89,474			

## DIE AND MEDAL BRANCH

The Die Department prepared a total of 2,484 matrices, punches and dies for coinage work during the year, compared to 2,273 in 1949.

A distinctive feature of the work in the Engraving Department during the year was the variety of newly engraved dies required for medals. Dimensions were much greater in some cases, and in addition to the circular form, dies were engraved for six-sided and ten-sided medals, which called for a special mode of treatment.

A number of problems arose in the intermediate processing between the artists' sketches or plaster models and the finished medals. Several reproductions faithfully engraved on the reducing machine reflected technical imperfections and errors that should have been remedied at the beginning of the project.

## COINAGE DIES

A master reverse punch for the 1951 nickel five-cent commemorative coin was cut on the reducing machine from a plaster model supplied by Mr. Stephen Trenka. (See Plate I).

## SEALS

For the Secretary of State Department a small seal  $1\frac{5}{8}$ " diameter was engraved in steel, consisting of the modified form of the Canadian Coat of Arms in the centre, surrounded by the words "REGISTRAR-GENERAL and REGISTRAIRE GÉNÉRAL—CANADA". A counter seal was supplied and both fitted to a suitable seal press.

## MEDAL DIES

His Majesty the King approved of the institution and design of a new medal to be known as "Canadian Forces Decoration" for award to members of the Canadian Armed Forces, to replace all existing decorations and medals for Long Service, Good Conduct and Efficiency. The design of the decoration is identical for the Navy, Army and Air Force.

From sketches supplied by the Department of National Defence, a reverse master die was cut by hand directly in the steel by the Mint Engraver. For the obverse design a master punch was made from the Royal Canadian Mounted Police master die in high relief. His Majesty's effigy only was used and the approved inscription for the Canadian Forces Decoration was engraved by hand around the edge.

Although the sketch of the reverse was faithfully engraved in every detail on the steel die, it was not deemed to be a satisfactory design when reproduced in relief on the medal. It was, therefore, redesigned by the Mint Engraver and had to be completely engraved again, a tedious and laborious piece of work which would have been unnecessary if the sketch had been submitted to Mint technicians before final approval had been given for the original design.

Master dies were all engraved by hand for the front of the ribbon bar, or clasp, with "CANADA" thereon, also the back of the clasp to place the name of the recipient, and for the scroll suspender.

The design, 12" diameter, was modelled for the new "Cadet Award for Bravery" medal from sketches supplied by the Department of National Defence. From this a plaster model was taken and the large design reduced by the pantograph machine on the steel master punch,  $1\frac{7}{16}$ " diameter. Hard steel working dies were then prepared to strike the medals. Master dies were engraved by hand for the scroll clasp and ribbon bar suspender. The brooch was struck from the same die as the ribbon bar, but left unslotted.

The Mint Engraver prepared the plaster model for the Art Directors Club Medal from a photostat copy of Mr. C. F. Comfort's design. From this the obverse master punch, 2" diameter, was cut on the reducing machine. The reverse master dies were then sunk from each of the master punches.

The Right Honourable Vincent Massey requested the Mint to strike a medal on behalf of the Massey Foundation to be presented by the Royal Architectural Institute of Canada. The designs of both the obverse and reverse were modelled in plaster by Mr. Eric Aldwinckle of Toronto. Patterns were cast from the original by the Mint Engraver, electrotypes prepared and master dies  $3\frac{1}{2}$ " diameter cut on the reducing machine.

The Mint Engraver modelled the designs for both obverse and reverse of the new Mint Long Service Medal, and reproduced them on the steel master dies,  $1\frac{7}{8}$ " diameter, by the reducing machine.

#### SIGNATURE DIES

At the request of the Bank of Canada a master punch was engraved by hand for the signature of the new Deputy Governor, Mr. J. E. Coyne. From the punch a master die was prepared which was used for striking up the signature plates.

The crest of the Engineering Institute of Canada was engraved in brass  $5/8$ " x  $3/4$ " for use on the Institute medal cases.

#### MEDALS

An order for 13,500 Canadian Forces Decoration Medals was received from the Department of National Defence. The official description reads:

"The Decoration shall be in the form of a decagon, each of the ten sides being representative of a Province of Canada. It shall bear on the obverse the effigy of the Sovereign, encircled by the inscription: GEORGIUS VI D:G: BRITT: OMN: REX FID: DEF: On the reverse appears a Crown, Maple leaves and an Eagle, representative of the Navy, Army and R.C.A.F. respectively, with the Royal Cipher (G VI R) superimposed overall." (See Plate II).





PLATE I



PLATE II





PLATE III



PLATE IV



The decoration is composed of 800 standard silver, i.e., the same as is used for Canadian silver coinage. When awarded to any arm of the Service, permanent or active force, the decoration will be finished in silver-gilt.

The decoration will hang from a solid bar suspender; on the obverse of the bar will appear the word "CANADA" in relief, and the reverse will be left blank for the inscription of the name of the recipient.

The medal will be struck in a collar to produce a diameter of  $1\frac{7}{16}$ " across from flat edge to flat edge and  $1\frac{1}{2}$ " across the angles. The suspender is to be made to take a ribbon  $1\frac{1}{2}$ " diameter; colour—scarlet-crimson with three white stripes.

Five hundred and nineteen only Canadian Forces Decoration medals were issued in 1950. They were frosted by sand blasting in preparation for fine gold plating by an outside contractor.

The balance of the clasps on hand, 285, for the Canadian Efficiency Medal were issued to the Department of the National Defence.

One hundred and three Royal Canadian Mounted Police Long Service and Good Conduct medals were struck, each mounted with clasp, and the name of the recipient engraved by hand on the edge of each medal.

Two hundred and seventy-six Governor General's medals for presentation to Educational Institutions throughout Canada, consisting of 210 bronze, 62 silver (800 standard) and 4 gold (silver gilt)  $2\frac{1}{16}$ " diameter, were struck on behalf of His Excellency the Viscount Alexander of Tunis. Suitable cases were provided, upon each of which was the imprint in gold of His Excellency's Crest.

For the Royal Society of Canada, two medals were struck in 14 carat and fine gold—

One Flavelle Medal, 14 carat, engraved "C. H. Best, 1950".

One Tyrrell Medal, fine gold, engraved "John B. Brebner, 1950".

For the Engineering Institute of Canada, six medals were struck in 10 carat gold and two in bronze:

One Gzowski gold medal, 10 carat, engraved "C. J. Pimenoff, 1949".

One Keefer gold medal, 10 carat, engraved "William L. Pugh, 1949".

Two Plummer gold medals, 10 carat, engraved "C. V. Trites, 1949" and "J. D. Shannon, 1949".

Two Leonard gold medals, 10 carat, engraved "P. E. Cavanagh, 1949" and "Owen J. Matthews, 1949".

Two Julian C. Smith medals in bronze, engraved "Geoffrey Abbott Gaherty, 1949" and "James Alexander McCrory, 1949".

For the Professional Institute of the Civil Service of Canada, one medal, 14 carat gold, was engraved with the name "F. W. Jackson, MD, DPH, 1950".

The Webster Memorial Trophy medal for Good Airmanship was struck in bronze and one medal engraved with the name of "Edward Mona, Vancouver".

Two 14-carat medals were struck for the International Congress of Mathematicians held at Harvard University in September 1950. These medals were engraved with the names of the recipients "Laurent Schwartz, 1950" and "Atle Selberg, 1950". The last previous award was made in 1936.

Seven 925 fine (sterling) silver medals, 2" diameter, were struck and finished in antique French tone for the Art Directors Club of Toronto. (See Plate III). The names of the recipients and the date 1950 were engraved on their respective medals as follows:

Leslie Trevor

J. S. Hallam

A. Stanley Furnival

Glen M. Frankfurter

Harold Town

Eric Aldwinckle

Oscar Cohen

Fifteen Mint Long Service Medals,  $1\frac{7}{8}$ " diameter, were struck in silver, 925 fine. Eight of these medals were engraved with the names of those members of the staff who had attained forty years service in 1948, ready for presentation. (See Plate IV).

Eighty signature plates were struck for the Bank of Canada with the signature of Mr. J. E. Coyne. These were attached to steel blocks, sized precisely to fit the printing presses.

## MECHANICAL BRANCH

Six coining presses have now been equipped with the single-lift device, machined in our own shops. This enables the presses to be operated at much higher speed, and to strike ten to twenty per cent more coins per minute. Instead of the bottom dies being lifted twice, once on the forward movement and once on the backward stroke of the slides, now only one upward movement takes place to eject the struck coin from the collar.

New tables for the coining presses, fingers, knuckles and bearings have been made and kept in hand ready for quick replacement of worn or broken parts with the minimum of delay in production.

Maintenance repairs and renewals of all machinery and equipment continued to be unusually heavy throughout the year, and were accomplished by the Mechanical staff without any major shutdowns, working Saturdays and Sundays when necessary. Great numbers of intricate and unique parts had to be machined here to keep the melting furnaces, rolling mills, cutting machines, coining presses and other apparatus at a high state of efficiency.

For the convenience of the staff and visitors to the Mint, drinking fountains with refrigeration units were installed in the Mint Office, Assay Office and main reception hall.

The work on the foundations, tracks, water-lines and the many connections necessary to the installation of the new high-frequency induction melting furnaces in the Refinery was carried out by the mechanical staff. Also, the installation of the new rough gold tilting furnace.

A complete set of cutters and beds suitable for work on the medal cutting presses was made for all sizes of medals.

Several thousand pounds of scrap iron, steel, copper and brass were salvaged and disposed of by the Crown Assets Disposal Corporation.

The three 75 H.P. boilers were thoroughly cleaned and overhauled during the summer months and passed by the Inspector. A steam driven vibrator tube cleaner was purchased for use on the boiler tubes, and proved to be both labour-saving and efficient in the removal of any scale surrounding the tubes.

## ELECTRICAL BRANCH

A program of remodelling machine drives has been made necessary by the proposed extension of the present minting capacity. Considerable advancement was made in spite of heavy production demands.

A small amount of experimental work was done by the branch during the year. Methods of mechanical handling of coins at high rates of speed for high frequency induction annealing and finished coin inspection were being developed. Ways and means to apply electrical controls to the various processes used in coin making were given consideration.

The electrical branch technicians, under direction, installed two high frequency induction melting furnaces in the rough gold melting room of the Refinery Division. One has a capacity of 50 kw. and the other 15 kw.

The electrical branch handled 354 trouble calls, 507 maintenance jobs and 192 new installations during the year.

A metal turning lathe was installed in this branch to meet the demands of electrical and mechanical processing at the same time.

## ASSAY DIVISION

Chief—W. A. HAWKEY

The number of assays made in the department from the 1st January to the 31st December, 1950, was as follows:

GOLD—		
Refinages.....	6,313	
Rough Gold.....	32,774	
Proofs.....	3,306	
Parting Proofs.....	847	
Parting Buttons.....	12,090	
Miscellaneous.....	1,421	
		56,751
SILVER—		
Standard Bars.....	7,511	
Pyx.....	2,554	
Fine Silver.....	1,539	
Worn Coin.....	73	
Proofs.....	799	
Miscellaneous.....	101	
		12,577
MISCELLANEOUS—		
Mint Residues (Sweeps, etc.).....	562	
For Marking Act Inspector.....	5	
Nickels, Coppers, etc.....	72	
		639
TOTAL.....		69,967

The Mean Fineness of the Silver Coinages struck in 1950 were as follows:—

Denomination	Standard Fineness	Mean Fineness
1 dollar.....	800.00	800.00
50 cents.....	800.00	799.26
25 cents.....	800.00	799.36
10 cents.....	800.00	799.36

Receipts of gold-silver bullion again showed an increase over the preceding year. Altogether 5,923 deposits, weighing 5,485,956.751 ounces troy were received and comprised the following:—

FINE GOLD—  
337 deposits weighing 800,451.566 ounces of a mean fineness of 997.216.

CRUDE BULLION—  
4,983 deposits weighing 4,481,393.350 ounces of an average fineness of 774.171 gold, 148.990 silver and containing 7.6839% base metal.

SCRAP (Jewellery and Dental)—  
337 deposits weighing 37,725.735 ounces with a mean fineness of 533.015 gold and 102.024 silver.

FROM VANCOUVER ASSAY OFFICE—  
266 ingots—166,386.100 ounces gross—813.000 gold and 159.573 silver.



Samples from 70 lots of nickel blanks (14,000,000 pieces) were assayed and found to satisfy specifications.

A number of medals were electro-plated for the Coinage and Medal Division.

Two working trial plates, one each of gold and silver, were made and fixed against our standards. Four ounces of the Gold Proof were sold.

Several suspected counterfeit coins were examined.

Early in the year a new electric furnace was installed to perform the numerous annealings necessary in gold assaying. This replaced an old gas heated muffle and has proved most satisfactory.

## REFINERY DIVISION

*Chief—C. J. MORRIS*

### HIGH FREQUENCY MELTING

Since the beginning of October, deposits in the Refinery have been melted in high frequency furnaces. The principle of induction melting is a simple one. An alternating current from an ordinary house circuit, in Ottawa, when passed through a coil of copper wire, will have a frequency of sixty cycles. This current sets up an electro-magnetic field within the coil and if a conductor is put into the field it will get hot. If now the frequency is stepped up to 3000 cycles as it is in our lift coil furnace, or to 30,000 cycles as it is in the spark gap converter, any conductor, such as a bar of gold, introduced into the field will melt in approximately ten minutes. The induction furnace is really an air-cored transformer whose primary is the furnace coil and whose secondary is the bar to be melted.

The electro-magnetic force not only speedily melts the charge, but it keeps the molten metal stirred up, distributing the various elements to all parts.

All the heat is concentrated in the charge itself, so the melters can now work in an atmosphere of comparative comfort instead of in a temperature of 120-150° F.

When blast furnaces were used, the molten surface of the metal was in contact with forced drafts of air for long periods, entailing a considerable melting loss of the base metal constituent of the ingot. This melting loss has now been reduced almost to zero in some cases.

### SUPPLEMENTARY ELECTROLYSIS

For many years the refining of gold at the Mint has been done exclusively by chlorination. It is now proposed to introduce electrolysis to supplement, but not to replace, the present process. Accordingly, a room has been fitted up in the Refinery as an electrolytic laboratory with selenium rectifiers in place of the old motor-generators. The new process will be started early in the coming year.

### MISCELLANEOUS IMPROVEMENTS

A modern well equipped kitchen has been erected for the Refinery, with a dining room overlooking the Ottawa river and the Gatineau hills. This replaces a small underground dining place which has now been converted into a motor generator room for the high frequency furnaces.

The time honoured Chilean mill has been replaced by a motor driven crusher which does its work so well that enlargement of the Hardinge ball mill has been rendered unnecessary for some years to come.

A hydraulic cutter is now being used in place of the old manual sampler which was a constant danger to the unwary. The new instrument, after adaptation by the Mechanics Division, has given great satisfaction.

The hydraulic tilter has now been adjusted and now works satisfactorily. The oil system was at first defective and unsatisfactory.

The following table shows the work done during the year.

## BULLION

Source		Number of Deposits	Fine Gold	Fine Silver
			Ounces	Ounces
Mines.....		5,320	4,267,587.831	622,869.90
Vancouver Assay Office.....		266	135,271.921	24,886.84
Miscellaneous.....		337	20,108.385	3,471.67

Refined and Delivered	Number	Gross Weight	Fine Weight	Average Assay
Special Fine Gold Bars.....	5	1,929.579	1,929.000	999.7
Fine Gold Bars.....	10,529	4,221,819.400	4,210,476.242	997.3
Granulated Gold.....		206,576.787	206,528.787	999.8
Fine Silver Bars.....	630	710,632.63	710,320.15	999.6
Granulated Silver.....		4,110.85	4,108.80	999.5

Received for Disposal	Source	Gold Fine	Silver Fine
Granulated Gold.....	Mint Office....	1,250.678	.....
Gold Medal Scrap.....	Mint Office....	1.419	.....
Silver Medal Scrap.....	Mint Office....	.....	271.94
Silver Coin Scrap.....	Mint Office....	.....	205.76

Special Processes	Number	Gross Weight	Silver Fine
Re-Melts.....	623	498,186.895	.....
Toughenings.....	5	2,613.025	.....
Sweeps.....		*167,300.5	.....
Chloride Reduction.....		* 85,184.0	.....
Re-Processed Silver.....	81	91,907.69	.....

NOTE:—Weights in ounces troy, unless otherwise shown. \*pounds avoirdupois.

# ASSAY OFFICE, VANCOUVER, B.C.

Manager—F. R. MULFORD

The sum of \$4,922,946.70 was disbursed for gold bullion purchases and the following shows source, weights, etc. of the deposits:—

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territory.....	288	117,943.92	93,323.655	20,420.89
British Columbia.....	334	40,079.20	35,173.511	2,385.15
Alberta.....	12	193.81	146.116	12.93
Jewellery and Dental Scrap...	143	3,435.53	1,380.678	581.06
	777	161,652.46	130,023.960	23,400.03

## COMPARATIVE STATEMENTS

(1) TOTALS FOR EACH YEAR UNDER ABOVE HEADINGS, 1942 TO 1950 INCLUSIVE:—

1942.....	1,460	183,738.18	147,517.917	26,422.54
1943.....	722	80,552.50	63,312.314	11,630.24
1944.....	577	48,983.87	37,679.028	7,649.55
1945.....	499	61,113.31	48,131.200	8,923.70
1946.....	603	85,071.57	67,325.255	12,923.84
1947.....	578	76,041.64	59,739.223	11,595.18
1948.....	621	110,223.80	88,267.384	15,725.07
1949.....	708	135,157.31	107,522.943	20,564.73
1950.....	777	161,652.46	130,023.960	23,400.03

(2) TOTALS FOR EACH YEAR, 1940 TO 1950 INCLUSIVE, DISBURSED FOR GOLD BULLION PURCHASES:—

1942.....	\$5,628,080.26
1943.....	2,414,688.10
1944.....	1,436,665.86
1945.....	1,835,799.67
1946.....	2,406,170.90
1947.....	2,081,867.67
1948.....	3,077,555.15
1949.....	3,903,665.49
1950.....	4,922,946.70

An upward trend of the amount of gold deposited is noted.

## MINT LONG SERVICE AWARD

The Master of the Mint instituted a new award for presentation to members of the Mint staff after forty years service, the award to be known as the Mint Long Service Medal.

The design of the obverse of the medal shows the facade of the main Mint building, surrounded by the designs in miniature of Canadian coins struck in 1948. In the exergue ROYAL CANADIAN MINT—LONG SERVICE MEDAL. On the reverse AWARDED TO (space for name of recipient) for EFFICIENT SERVICE.

The following eight members of the staff were presented with the award by The Honourable the Minister of Finance, Mr. Douglas Abbott, in the presence of all members of the Mint staff. Mr. Abbott felicitated the recipients upon their fine record of exemplary service.

#### ALLEN A. JOY

Mr. Joy worked on the construction of the Mint building in 1907 and commenced his duties as a Mint Workman on 2nd January, 1908. For many years prior to his retirement Mr. Joy has been responsible for "telling" the many millions of coins issued by the Mint for use in Canada. For the past several years Mr. Joy has been a Mint Craftsman, Grade 3. Mr. Joy retired in 1950 after 42 years service.

#### ADELARD I. ARCHAMBAULT

As in the case of Mr. Joy, Mr. Archambault was engaged on work in connection with the construction of the Mint and commenced duty as a Second Class Workman in the Coining Department of the Mint on 2nd January, 1908.

Mr. Archambault was a foreman in the Coining and Medal Division at the time of his retirement after 43 years service.

#### WALTER H. DELANEY

Mr. Delaney commenced work in the Mint on the 2nd January, 1908, as Third Class Workman in the Coining Press Room. His service has covered all branches of the Coining Department and he has been employed as a Foreman in that Department for the past several years. Mr. Delaney has served 43 years in the Mint.

#### LEWELLEYN O. HOLLINGTON

Mr. Hollington commenced his duties in the Mint on 2nd January, 1908, as Third Class Workman in the Coining Department. He has 43 years service to his credit and at present is employed as a Mint Craftsman, Grade 2, in the Coining and Medal Division.

#### LESLIE G. MANSELL

Mr. Mansell commenced his duties in the Coining Department as a Third Class Workman. For many years he has been employed as a Mint Craftsman in the Gold Refinery of the Mint. His length of service, 43 years, is approaching that of his father, the late Mr. Thomas H. Mansell, original Foreman of Coining in the Ottawa Mint, whose combined service in the Royal Mint, London, and the Royal Mint, Ottawa, amounted to 52 years.

#### HECTOR C. DUBOIS

Mr. Dubois was employed as Third Class Workman in the Mint at the beginning of his service on 27th January, 1908. He has served in the various sections of the Coining Department during the past 43 years and is now employed in that Department as a Mint Craftsman, Grade 3.

#### ALFRED J. TESSIER

Mr. Tessier commenced his duties as a Third Class Workman in the Mint on 10th February, 1908. He has served in the various sections of the Coining Department and is now Foreman of the Melting House section of the Coining Department. Mr. Tessier has 43 years service to his credit.

#### OWEN C. TOLLER

Mr. Toller entered the service of the Mint on 7th January, 1908, as a Junior Clerk. He has served in both the Mint Office and Coining Division of the Mint in his 43 years of service. At present Mr. Toller is the Administrative Officer in charge of the operations in the Melting House of the Coining and Medal Division.



## GENERAL

During the year a survey of the Administrative and Accounting methods of the Department was undertaken, resulting in several changes being made to generally improve the system used in the Mint.

The annual stocktaking and inspection of the store of bullion and coin, as required by the Act establishing the Royal Canadian Mint, was conducted by the officers of the Auditor General's Department in March.

The Assay Commissioners, Dr. J. D. Babbit of the Division of Physics and Electrical Engineering, National Research Council, Dr. E. L. Tollefson of the Division of Chemistry, National Research Council, and Mr. J. A. Fournier, Chief of the Chemical Laboratory, Department of Mines and Technical Surveys, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1949 had been minted in accordance with the provisions of the said Act, were sworn in by His Honour, Judge A. G. McDougall, on the 2nd day of May, 1950.

The findings of the Commissioners indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act.

Sixteen thousand, five hundred and fifty-two visitors were admitted to view the coining operations of the Mint during the year.

The number on the staff on 31st December, 1950, was 222. Of this number 27 were employed in the Administrative and Mint Office, 137 in the Coining and Medal Division, 15 in the Assay Division, 34 in the Refinery, and 9 in the Assay Office at Vancouver.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada since 1858.

I am, Sir,

Your obedient Servant,

W. C. RONSON,  
Master, Royal Canadian Mint.



## APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on January 2, 1908, to its disestablishment on November 30, 1931, and of the Royal Canadian Mint from December 1, 1931, to December 31, 1950.

Year	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Statutory Value Gold only	Coin	Bullion	Statutory Value Coin and Bullion
	Ounces	\$	\$	Ounces Fine	\$
1908 to 1940.....	76,948,280.400	1,286,874,974.84	7,923,908.73	61,741,509.942	1,284,234,180.24
1941.....	6,444,056.215	105,273,560.67	.....	5,134,347.805	106,136,385.78
1942.....	5,761,045.973	95,338,135.90	.....	4,611,892.227	95,336,270.79
1943.....	4,456,437.559	74,769,168.35	.....	3,645,739.964	75,364,131.92
1944.....	3,537,734.636	59,163,794.79	.....	2,829,755.000	58,496,226.17
1945.....	3,102,991.020	51,750,218.87	.....	2,499,163.674	51,662,297.22
1946.....	3,271,246.445	54,826,765.59	.....	2,665,964.763	55,110,381.61
1947.....	3,559,496.703	59,296,515.31	.....	2,859,084.218	59,102,514.80
1948.....	4,252,389.454	70,325,402.34	.....	3,405,073.335	70,389,111.41
1949.....	4,941,749.248	81,149,717.63	.....	3,865,296.377	79,902,766.08
1950.....	5,485,956.751	91,430,862.97	.....	4,347,961.898	89,880,347.18
	121,761,384.404	2,030,199,117.26	7,923,908.73	97,605,789.203	2,025,614,613.20

# APPENDIX B COIN ISSUED IN CANADA

	—	SILVER										NICKEL	TOMBAC	STEEL	BRONZE				
		Dollar \$	50c. \$	25c. \$	20c. \$	10c. \$	5c. \$	Total Silver \$	5c. \$	1c. \$	1/2c. \$								
1858 to 1907	{ New Brunswick, 1861, 2 and 4 Nova Scotia, 1861, 2 and 4, Prince Edward Island, 1871, Rest of Canada, 1858-1907 Totals.....				60,000	25,000	10,000	95,000		20,000	1,114								
										26,000	4,000								
										10,000									
						1,249,018	150,000	3,040,000	2,926,000	12,459,996									
						1,249,018	210,000	3,065,000	2,936,000	12,554,996									
		GOLD																	
		Sovereigns £	\$10 \$	\$5 \$															
1908																			
to																			
1939		627,834	3,480,360	1,388,060	*2,285,852	3,073,900	12,343,725	00	7,769,444	00	3,084,802	28,557,723	00	3,381,700	00	2,574,906	00		
1940			20	10		968,000	2,343,000	00	1,534,000	00		4,845,000	00	660,500	00	822,800	00		
1941						842,000	1,718,000	00	974,000	00		3,534,000	00	454,000	00	575,300	00		
1942						1,022,000	1,708,000	00	1,034,000	00		3,764,000	00	361,575	50	783,500	00		
1943						1,564,000	3,402,000	00	2,078,000	00		7,044,000	00		1,238,000	00	881,300	00	
1944						1,230,000	1,818,000	00	958,000	00		4,006,000	00		400	00	454,600	00	
1945						38,300	980,000	00	1,074,000	00		3,416,300	00		950,300		748,500	00	
1946						91,000	400,000	00	654,000	00		1,701,000	00		528,500	00	528,500	00	
1947						67,000	278,000	00	444,000	00		1,186,000	00		360,300	00	360,300	00	
1948	dated 1947					21,876	30,242		983,424	20		2,134,580	95		452,296	05	452,296	05	
1949	dated 1948					8,080	17,758		36,575	80		695,375	05		256,003	95	256,003	95	
1949						641,840	429,001		1,112,000	60		4,148,842	10		637,500	10	321,901	02	
1950						299,713	1,154,054		1,794,011	40		5,641,805	40		607,003	08	607,003	08	
						3,453,661	13,237,973		210,000	23,510,456	00	83,229,622	50		1,521,300	10	10,226,225	10	
		627,834	3,480,380	1,388,070			36,796,730	50	6,020,802			7,433,786	00		1,407,824	50	5,114		

\* Of this amount \$15,000 returned in 1940.

† This coin struck in 1943.

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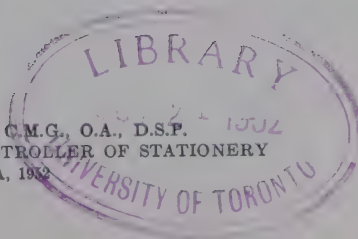
DEPARTMENT OF FINANCE

Canada,  
III

ROYAL CANADIAN MINT

Report  
For Calendar Year  
1951

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1952









DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For the Calendar Year

1951

Published by Authority of Hon. D. C. ABBOTT, M.P.  
Minister of Finance

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1952



# ROYAL CANADIAN MINT

OTTAWA, ONTARIO.

The Honourable,  
The Minister of Finance,  
OTTAWA, Ontario.

SIR:

I have the honour to submit the following report on the operations of the Royal Canadian Mint during the calendar year 1951.

## ADMINISTRATIVE AND MINT OFFICE

*Chief Administrative Officer—A. P. WILLIAMS*

### COINAGE

There was an increase of 12,705,936 in the number of coins issued during 1951 as compared with the previous year. A detailed statement of the issues by denomination for the years 1950 and 1951 is set out below:

Denomination	Coin Issued in				
	1950	1951			1951
		Dated 1949	Dated 1950	Dated 1951	Total
	\$	\$	\$	\$	\$
SILVER COIN—					
1 dollar.....	299,713.00	756.00	501.00	410,566.00	411,823.00
50 cents.....	1,154,054.00	118.50	39,284.50	1,199,096.00	1,238,499.00
25 cents.....	2,394,027.00	61.50	63,464.00	2,041,714.50	2,105,240.00
10 cents.....	1,794,011.40	36.60	15,529.20	1,442,549.30	1,458,115.10
Total Silver.....	5,641,805.40	972.60	118,778.70	5,093,925.80	5,213,677.10
NICKEL COIN—					
5 cents.....	640,510.40	17.45	6,951.30	416,034.45	423,003.20
STEEL COIN—					
5 cents.....				182,829.35	182,829.35
BRONZE COIN—					
1 cent.....	607,003.08	4.35	8,504.14	774,820.63	783,329.12
Total.....	6,889,318.88	994.40	134,234.14	6,467,610.23	6,602,838.77
Representing.....	Number of Pieces				
		2,389	1,477,658	114,860,448	
TOTAL.....	103,634,559		116,340,495		116,340,495

Distribution of the coin issued to the various Agencies of the Bank of Canada and Sundry Persons was as follows:

Agency	Silver				Nickel	Steel	Bronze
	Dollar	50 Cents	25 Cents	10 Cents	5 Cents	5 Cents	1 Cent
	\$	\$	\$	\$	\$	\$	\$
Calgary.....	12,000.00	111,000.00	243,000.00	149,000.00	41,000.00	18,000.00	59,420.00
Halifax.....	12,000.00	62,000.00	166,000.00	92,000.00	35,000.00	12,400.00	40,000.00
Montreal.....	76,000.00	77,000.00	717,000.00	316,000.00	207,200.00	42,300.00	213,800.00
Ottawa.....	48,500.00	28,000.00	117,000.00	55,000.00	15,500.00	13,200.00	29,680.00
Ottawa for Charlottetown.....		2,000.00	8,000.00		2,500.00	500.00	2,680.00
Ottawa for St. John's Nfld.....	4,000.00	10,000.00	10,000.00	26,000.00	12,500.00	3,900.00	22,320.00
Regina.....	4,000.00	60,000.00	194,000.00	90,000.00	40,000.00	3,900.00	48,700.00
St. John, N.B.....	10,000.00	26,000.00	102,000.00	60,000.00	14,000.00	8,300.00	41,340.00
Toronto.....	194,000.00	654,000.00	152,000.00	440,000.00	22,900.00	39,000.00	213,600.00
Vancouver.....	18,000.00	208,000.00	130,000.00	100,000.00	15,000.00	20,200.00	75,400.00
Winnipeg.....	24,000.00		266,000.00	130,000.00	17,000.00	20,900.00	36,360.00
Sundry Persons.....	9,323.00	499.00	240.00	115.10	403.20	229.35	29.12
Total.....	411,823.00	1,238,499.00	2,105,240.00	1,458,115.10	423,003.20	182,829.35	783,329.12

### Worn and mutilated coin withdrawn from circulation:

	Withdrawn	Net Increase in Circulation
	\$	\$
Silver Coin.....	49,257.80	5,164,419.30
Nickel Coin—5 cents (mutilated only).....	1,038.05	421,965.15
Tombac Coin—5 cents.....	21,784.40	
Steel Coin—5 cents.....	399.75	182,429.60
Bronze Coin.....	1,302.29	782,026.83

### GOLD BULLION

Five thousand seven hundred and seventy six deposits of gold bullion were received at the Mint during the year from Canadian Mining Companies, the Assay Office, Royal Canadian Mint, Vancouver, B.C. and sundry persons. The gross weight of the deposits amounted to 5,246,759 ounces containing by assay 4,169,480 ounces fine gold and 651,004 ounces fine silver. (Note: The variation between these figures and those set out in the table of origin below is due to shipments from the Assay Office, Vancouver, being received at the Royal Canadian Mint, Ottawa, the month following deposit and payment at Vancouver). The receipts show a decrease as compared with the year 1950 of 147 in the number of deposits, gross weight 239,198 ounces, gold content 253,488 ounces and fine silver 224 ounces.

The net value paid by cheque to depositors was \$142,075,349.02. In addition the amount of fine gold issued to depositors was 121,836.848 ounces.

Postage collected for the Postmaster General on deposits shipped by mail, postage collect, amounted to \$39,133.70.



Details of the origin of the bullion deposited at Vancouver and Ottawa during the year 1951 are shown in the following table:

From Canadian Mines and Refineries	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
Ontario.....	3,018,118.044	2,443,243.299	333,209.83
Quebec.....	1,393,507.375	1,100,148.791	191,785.47
British Columbia.....	229,087.285	182,051.951	29,419.40
Manitoba.....	176,318.350	142,157.662	16,351.40
Yukon Territory.....	97,455.820	77,503.840	16,720.26
Nova Scotia.....	29.400	17.418	1.15
North West Territories.....	302,937.975	209,115.970	60,941.64
Alberta.....	127.480	96.471	8.86
Total from Canadian Mines and Refineries.....	5,217,581.729	4,154,335.402	648,438.01
From Jewellery and Scrap.....	36,350.403	19,323.100	3,676.22
GRAND TOTAL.....	5,253,932.132	4,173,658.502	652,114.23

The following table shows the disposition of the fine gold produced in various forms (trade bars, granulated gold, sweep, medals, etc.):

	Ounces Fine
9,613 Trade Bars transferred to Exchange Fund Account of Minister of Finance and held in safe-keeping by Bank of Canada.....	3,849,507.749
Depositors—granulated and bars.....	122,220.733
Sales to Manufacturers—granulated.....	191,080.125
Proof Plate for assay purposes.....	2.000
Medals, etc.....	12.472
Sweep.....	4,662.795
	4,167,485.874

This total shows a decrease of 180,476.024 ounces fine as compared with the year 1950.

On Friday, the 26th day of October, 1951, His Excellency, the Governor General in Council, on the recommendation of the Minister of Finance, prescribed the circumstances under which, and the conditions upon which gold may be accepted at the Royal Canadian Mint for Custom Refining and Storing.

The Regulations (appendix C) allow gold producers to make shipments of bullion to the Royal Canadian Mint for melting, assaying and refining, and to be held at the Mint until such time as the producers have a market for the gold.

Twenty-two mines have taken advantage of the opportunity to dispose of their bullion in the world market.

## COINING AND MEDAL DIVISION

Chief—R. J. EDMUNDS

Good coins produced during 1951 reached nearly 120 millions, exceeding the year 1950 by over 16 million pieces. As usual, requirements for one-cent coins predominated, over 80 million of this denomination being struck.

The number of pure nickel five-cent coins struck to commemorate the two-hundredth anniversary of the isolation and naming of the element "Nickel" in 1751, amounted to 8,330,625 pieces. To conserve that metal for defence purposes, the minting of this coin ceased after the supply of nickel blanks was exhausted in October, 1951. The dates 1751-1951 appear on the reverse of the five-cent nickel coins, this design was authorized for the year 1951 only.

As a substitute to replace the pure nickel coin, chromium-plated steel, similar to that used in 1944 and 1945, seemed to be the only metal available to meet urgent demands for five-cent coinage. The steel coins are identical in weight, diameter and colour with the pure nickel coins. The specific gravity of steel is slightly less than nickel and a minute adjustment was made in the thickness of the coins in order to keep them within the legal remedy of weight.

The steel is purchased in strip form, low carbon composition, cold rolled and annealed to 40-50 Rockwell "B". The strips receive a coating of nickel .0005" thick, and a chromium plate .00001" thick. The dimensions of the strips for five-cent coins are 2 5/8" wide (to cut six blanks at each stroke of the press) and are .063"-.065" thick to produce blanks 70 grains in weight.

The resources of the Coining Division were not adequate to meet the continuous heavy production of coins required without recourse to a two and three shift basis for most of the year and overtime during the last few months. Only by this means was it possible to accumulate the stock-pile of blanks and coins, amounting to 39,000,000 pieces in July, which were available to supply the demand for coin which develops during the last few months of each year. In November over 27 million pieces were issued. Without this reserve a most critical situation arises in the failure to satisfy the national requirements.

Until recently the continued large scale orders for Canadian coinage, averaging about 100 million pieces annually over a period of twelve years, were considered abnormal and of temporary duration. In view of the changed conditions and the consistent heavy demand for coin to meet the needs of the public, this average now has to be regarded as a normal year's production.

The erection of the additional premises now in progress on the south side of the present buildings, the re-arrangement of existing equipment, and the purchase of the most modern minting machines available has been designed to increase the capacity of the Coining and Medal Division to deal expeditiously with pressing requirements working on a normal one-shift basis only.

The following table shows in detail by denomination the number of good coins produced in 1950 and 1951:

CANADA	1950	1951
	Pieces	Pieces
SILVER, 800 FINE—		
1 dollar.....	301,720	411,395
50 cents.....	2,384,179	2,421,010
25 cents.....	9,673,335	8,285,599
10 cents.....	17,823,595	15,079,265
NICKEL, PURE—		
5 cents.....	12,669,706	8,329,321
STEEL—		
5 cents.....		4,313,410
BRONZE—		
1 cent.....	60,444,992	80,430,379
TOTAL.....	103,297,527	119,270,379

Details of the weights of silver bullion, copper and other metals used in the casting of coinage bars, bars rolled, blanks cut and good coins produced are summarized below:

CANADA	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ozs.	Ozs.	Ozs.	Ozs
SILVER (800 fine)—				
1 dollar.....	714,418.20	757,596.20	367,781.39	309,110.84
50 cents.....	1,882,046.30	1,608,833.40	979,651.27	907,790.53
25 cents.....	2,883,561.30	2,611,509.50	1,732,177.22	1,553,152.32
10 cents.....	2,054,768.10	1,856,519.40	1,177,898.89	1,129,847.06
Total Silver.....	7,534,793.90	6,834,458.50	4,257,508.77	3,899,900.75
	Lbs.	Lbs.	Lbs.	Lbs.
NICKEL—				
5 cents.....				83,306.25
STEEL—				
5 cents.....			50,757.83	42,102.96
BRONZE—				
1 cent.....	884,495.50	866,673.28	578,144.00	573,944.00
	Short Tons	Short Tons	Short Tons	Short Tons
	770.6	667.6	460.5	483.4

#### MELTING HOUSE

In addition to the 770.6 tons of coinage bars cast, there were 59,384 ounces of worn and mutilated Canadian silver coins and 10,318 ounces of obsolete Newfoundland silver coins cast into ingots for assay, and conversion into 800 standard coinage bars. The five-cent tombac coins withdrawn, amounting to 9,395 pounds, and the one-cent bronze worn coins, 1,853 pounds, were cast into one-cent coinage bars. For the Canadian Forces Decoration medals, 800 fine silver bars, weighing 22,631 ounces, were required, and 200 pounds of tombac metal for the Massey Medals. Three thousand and twenty-two pounds of tin were cast into convenient slabs for the one-cent alloy.

#### ROLLING ROOM

Extra work performed in addition to the 667 tons of coinage bars rolled consisted of:

1. 5,443 ounces of fine gold rolled to 10/1000" gauge for the anodes in the Electrolytic plant of the Refinery.
2. 3,814 ounces fine silver bars for 2½, 10, and 26 grain discs for the Assay Department; 2,250 pounds of lead for lead discs; 53.84 ounces of silver proof plate; and 96.00 ounces of gold proof plate. For medal work 22,631 ounces of bars, 800 fine, were rolled.

#### CUTTING ROOM

Further improvements were made in the methods of blank-cutting and sorting of notched and defective blanks, and this has resulted in speeding up production and effecting economies.



The slow and tedious sorting of the blanks was eliminated for all denominations except the fifty-cent and dollar blanks. By a simple, yet effective, arrangement consisting of a vibrating screen with holes .015" smaller than the blanks the good and imperfect blanks are separated automatically.

At each stroke of the press a vibration is set up in the inclined perforated screen, and the imperfect blanks drop through into a receptacle below, while the good pieces slide over the holes toward the front of the press into the box used for good blanks.

Die sets were installed on the four cutting machines for all denominations of blanks, except 50 cents and 1 dollar. The accuracy of the closing of the die is the most important element in the production of accurate stampings. Several advantages have been gained over the method of using individual cutters and punches, viz., time is saved in setting up the dies for operation, the dies are located and held in proper relation to the punches, and a greatly increased output of work has resulted due to the more rugged construction. Blanks for 10 cents and 25 cents are now cut at the rate of 720 per minute instead of 360, using four dies, and 5 cents and 1 cents are cut 900 per minute, using six dies.

#### PRESS ROOM

In anticipation of the change-over from direct current to alternating current to drive the coining presses in the new press room under construction, one press was equipped with an alternating current motor and suitable control to operate at variable speeds. The trial run and subsequent working of this equipment was so satisfactory, attaining a striking speed of over 125 pieces per minute, under perfect control, that no difficulty is foreseen by the elimination of direct current drive and the installation of alternating current on all presses.

The standard practice of anchoring heavy machines to the floors by lag screws and expansion bolts is not feasible on all types of floors. Tests were made in securing a cutting press and a coining press to the floor by the use of cork and felt pads under the base, cemented to the floor and machines. Vibration and noise have been reduced, a saving made in time and labour installing and positioning, and the presses appear after several months of trial to be anchored as firmly as by the conventional floor bolts.

The number of dies used for each denomination, and the average production of coins for each pair of dies for the years 1950 and 1951 are shown in the table below:

Denomination	1950				1951			
	Number of Good Pieces Coined	Number of Dies Used		Pieces per pair of Dies	Number of Good Pieces Coined	Number of Dies Used		Pieces per pair of Dies
		Obverse	Reverse			Obverse	Reverse	
\$1.....	301,720	69	52	4,987	411,395	111	65	4,675
50 cents..	2,384,179	87	40	37,546	2,421,010	55	47	47,471
25 cents..	9,673,335	222	200	45,845	8,285,599	192	197	42,709
10 cents..	17,823,595	628	418	34,080	15,079,265	348	267	49,118
5 cents..	12,669,706	177	100	91,478	12,642,731	194	191	65,848
1 cent....	60,444,992	166	150	352,563	80,430,379	158	150	522,270
	103,297,527	1,349	960		119,270,379	1,058	917	
	Average per pair of dies.....89,474				Average per pair of dies.....120,840			

## DIE AND MEDAL BRANCH

The Die Department prepared 2,137 matrices, punches and dies for coinage and medal work, compared to 2,484 in 1950.

### COINAGE DIES

Lower relief reductions from the original electrotypes were made on the reducing machine for the twenty-five cent and ten cent obverses, the modification giving a coin of greatly improved appearance.

### SEALS

For the Secretary of State a seal  $2\frac{1}{4}$ " diameter was engraved in steel, consisting of the shield and crown of the Canadian Coat of Arms in the centre, surrounded by the words "ADMINISTRATOR—ADMINISTRATEUR—CANADA". A counter seal was supplied and both fitted to a suitable seal press.

For the Department of Insurance, a seal  $1\frac{5}{8}$ " diameter was engraved by hand in steel and the counter seal struck in copper. Surrounding a Crown and Canada in the centre were the words "SUPERINTENDENT OF INSURANCE, OTTAWA".

### MEDAL DIES

Mr. Emanuel Hahn, R.C.A., S.S.C., supplied plaster models of the Chemical Institute of Canada Medal, which he had been commissioned to prepare by the International Nickel Company of Canada. Nickel electrotypes were grown at the Mint from the plaster models. Obverse and reverse working dies were cut on the reducing machine from the electrotypes. These dies were used to strike the pure palladium medals with six sides,  $2\frac{1}{2}$ " across the flat sides and 3" across the angles.

The reverse die for the Royal Canadian Mounted Police medal was re-cut by hand to improve the design of the buffalo head.

### MEDALS

The balance of the order for the Canadian Forces Decoration, 13,000 medals with clasps, was completed, and delivered to the Department of National Defence.

Twenty-five Cadet "Award for Bravery" medals were struck in silver 800 fine,  $1\frac{7}{16}$ " diameter, from dies prepared by the Mint Engraver, described in the 1950 Mint Annual Report.

Forty-six Royal Canadian Mounted Police Long Service and Good Conduct medals, each mounted with clasp, were struck and the name of the recipient engraved on the edge of each medal.

Two hundred and eighty-seven Governor General's medals, consisting of nine gold (silver gilt), 66 silver (800 fine) and 212 bronze,  $2\frac{1}{16}$ " diameter, were struck on behalf of His Excellency the Viscount Alexander of Tunis. Suitable cases were provided, upon each of which was the imprint in gold of His Excellency's Crest.

For the Royal Society of Canada, five gold medals were engraved as detailed below:

One Flavelle Medal, 14 carat, engraved "Awarded to Wilder G. Penfield, 1951".

Two Tyrrell Medals, fine gold, engraved "Awarded to Jean Bruchesi, 1951", and "Awarded to D. C. Creighton, 1951".

One Henry Marshall Tory Medal, 18 carat, engraved "Awarded to T. Thorvaldson, 1951".

One Willet G. Miller Medal, 18 carat, engraved "Awarded to J. E. Hawley, 1951".



For the Engineering Institute of Canada, two medals were struck in 10 carat gold and three in bronze:

One Leonard gold Medal, 10 carat, engraved "O. W. Ellis, 1950".

One Gzowski gold Medal, 10 carat, engraved "F. S. Small, 1950".

One Sir John Kennedy Medal in bronze, engraved "C. R. Young, 1950".

Two Julian C. Smith Medals in bronze, engraved "C. M. Anson, 1950", and "C. P. Edwards, 1950".

For the Professional Institute of the Public Service of Canada, one medal, 14 carat gold, was engraved with the name "H. E. Seely, 1951". In 1950 the Professional Institute of the Civil Service was incorporated under the name Professional Institute of the Public Service of Canada. The word "Civil" was, therefore, replaced by the word "Public" on the dies and used for striking the 1951 medal.

One Webster Memorial Trophy Medal for Good Airmanship was struck in bronze and engraved "Donald George Fisher, 1951".

Thirteen Massey Foundation Medals for the Royal Architectural Institute of Canada were struck in bronze,  $3\frac{1}{2}$ " diameter, from dies prepared in 1950. The medals were bracteated gold and silver. On the obverse is a hart in a reclining position beside a castle tower, surrounded by the words "THE MASSEY FOUNDATION—1896-1918". On the reverse a plain inscription reads "PRESENTED BY THE MASSEY FOUNDATION ON THE RECOMMENDATION OF THE ROYAL ARCHITECTURAL INSTITUTE OF CANADA".

Four sterling silver medals (925 fine), 2" diameter, were struck and finished in antique French tone for the Art Directors Club of Toronto.

On behalf of the International Nickel Company of Canada, ten hexagonal medals in pure palladium were struck as awards by the Chemical Institute of Canada. The design of the obverse shows the head of Cronstedt, facing left, with the incuse inscription "AXEL. FREDRIK. CRONSTEDT. ISOLATOR. OF NICKEL 1751". On the reverse is the monogram of the Chemical Institute of Canada surrounded by the words in intaglio "FOR. OUTSTANDING. ACHIEVEMENT. IN. CHEMISTRY. FOUNDED. 1951". Each medal was enclosed in a special presentation case designed and made at the Mint, of Canadian maple.

For the Department of Health and Welfare, one gold medal, 14 carat, National Amateur Athletic Achievement award was struck and engraved with the name of the recipient "Robert Malcolm McFarlane, 1951". Ten medals were also struck in bronze.

## MECHANICAL BRANCH

The following pieces of modern equipment, each with individual motor drive, were purchased and installed to keep abreast of the quickened activities.

- 1 Dean Smith and Grace Lathe 13" x 42"
- 1 Dean Smith and Grace Lathe 15" x 48"
- 1 Lodge and Shipley Lathe 13" x 54"
- 1 McDougall Gap Lathe 36" x 72"
- 1 Van Norman Milling Machine Model 22M
- 1 Do All Contour Machine Model ML
- 1 Marvel Power Hack Saw No. 64
- 1 Gillmeyer and Livingstone Universal Grinder No. 70
- 1 Adcock Shipley Radial Drill 36" beam
- 1 Butler Super Shaper 18"

With the exception of one machine, the overhead pulley line and countershaft belt drives have been eliminated. Arrangements are being made to equip this machine with auto-drive when placed in the new building.

In addition to the usual amount of running repairs and maintenance work, the mechanical staff was called upon to overhaul and recondition vital equipment after normal working hours in order to keep up with the heavy demands for coinage.

The second rotary gear pump with direct motor drive was installed in the boiler room to supply fuel-oil to the three steam boilers used for heating the Mint buildings. The first pump of a similar type was installed in 1950 to pump the oil from the four 1700 gallon tanks to the gold melting and chlorination furnaces in the Refinery. Each pump has sufficient capacity and discharge pressure, and has been connected up to supply fuel-oil in case of emergency to the Refinery furnaces and boilers concurrently.

Several thousand pounds of scrap iron, steel, copper and brass, and a number of machines, were disposed of by the Crown Assets Disposal Corporation.

The three 75 H.P. boilers were thoroughly cleaned, and overhauled during the summer months, and passed by the Inspector.

### ELECTRICAL BRANCH

The programme of remodelling and expansion that was started last year was carried on in much greater volume. Electric motor drives were designed and installed on one coining press, changing over from direct to alternating current, with a minimum of interruption to coin production. Arrangements are being made to equip all the coining presses, when set up in the new building, with the variable speed type of power drive.

Research and study of the high frequency induction annealing processes for heat treatment of both coinage bars and blanks have been continued, to evolve equipment that will meet the demands of the increased output required.

No major break-down occurred in the operation of the general plant. Routine work was as follows: 283 minor trouble calls, 19 motors and small transformers rewound, 12 replacements in connection with the new minting system, and 77 welding jobs.

### ASSAY DIVISION

*Chief—W. A. HAWKEY*

The number of assays made in the department from the 1st of January to 31st of December 1951 was as follows:

GOLD—		
Refinages.....	6,347	
Rough Gold.....	32,537	
Proofs.....	3,283	
Parting Proofs.....	833	
Parting Buttons.....	11,747	
Miscellaneous.....	1,901	
		56,648
SILVER—		
Standard Bars.....	7,901	
Pyx.....	2,433	
Proofs.....	691	
Fine Silver.....	1,270	
Worn Coin.....	163	
Miscellaneous.....	220	
		12,678
MISCELLANEOUS—		
For Marking Act Inspector.....	25	
Checks for sundry persons.....	16	
Mint Residues (Sweeps, etc.).....	570	
Nickel Determinations.....	32	
		643
TOTAL.....		69,969

The mean finenesses of the Silver Coinage struck in 1951 were as follows:

Denomination	Standard	Mean Fineness
1 dollar.....	800.00	799.88
50 cents.....	800.00	799.12
25 cents.....	800.00	799.17
10 cents.....	800.00	799.19

Gold-Silver bullion with a gross weight of 5,031,941.849 ounces were received, made up of the following:

**FINE GOLD—**

314 deposits weighing 710,953.675 ounces of a mean fineness of 997.415.

**CRUDE BULLION—**

4,955 deposits weighing 4,147,961.751 ounces with an average fineness of 758.887 gold, 161.433 silver and containing 7.968% base metal.

**SCRAP (Jewellery and Dental)—**

289 deposits weighing 33,568.553 ounces with a mean fineness of 540.272 gold and 104.641 silver.

**FROM VANCOUVER ASSAY OFFICE—**

218 ingots—139,457.870 ounces at 823.782 gold and 151.197 silver.

Samples from 32 lots of nickel blanks (6,400,000 pieces) were assayed and found to satisfy specifications.

A number of medals were electro-plated for the Coinage and Medal Division.

Two working trial plates, one each of gold and silver, were made and fixed against our standards. Two ounces of each were sold during the year.

Twelve suspected silver coins were examined. Of these seven were genuine, one a counterfeit containing silver and the other four counterfeits of a base metal alloy.

## REFINERY DIVISION

*Chief—C. J. MORRIS*

### ELECTROLYSIS

The refining of gold bullion by the chlorination method was introduced into the Ottawa Mint during the First Great War and proved to be so speedy and efficient that electrolysis was gradually dropped.

Until 1951 chlorination had been used exclusively in the new Refinery built in 1936 but it was recently decided to install a pilot electrolysis plant for experimental purposes. The apparatus consists of a rectifier with a maximum output of 12 volts and 250 amps. serving six cells, each of 27.5 litres capacity and running at 2 volts per cell with a total amperage of 162. Six anodes and nine cathodes per cell are suspended from sterling silver rods in a gold chloride electrolyte, agitated by forced air. Gold of a fineness from 999 to 999.9 is produced at an average rate of 10,000 ounces per working week. This electrolytic product has been very useful in providing granulated high grade fine gold for trade purposes.

### HIGH FREQUENCY MELTING

Throughout the year all pre-melting of deposits has been done in the new high frequency induction furnaces. The melts have been very satisfactory and the speed, cleanliness, and cool working conditions have made a great uplift in

morale, especially in the hot summer months. In the absence of refractory base, melting loss has been found to be very low, consistently nil in the case of some individual deposits and showing an average of .00093% in the case of one of the largest producers in Canada.

The following tables summarize the activities of the Refinery during 1951:

## BULLION

Source		Number of Deposits	Fine Gold	Fine Silver
			Ounces	Ounces
Mines.....		5,269	4,036,460.510	628,136.42
Vancouver Assay Office.....		218	114,882.830	19,691.02
Miscellaneous.....		289	18,136.174	3,176.96

Refined and Delivered	Number	Gross Weight	Fine Weight	Average Assay
Special Fine Gold Bars.....	124	50,311.120	50,293.675	999.6
Fine Gold Bars.....	9,577	3,845,536.180	3,834,893.730	997.2
Granulated Gold.....		254,988.165	254,898.372	999.6
Fine Silver Bars.....	543	590,220.83	590,072.40	999.7
Granulated Silver.....		4,750.28	4,748.49	999.6

Received for Treatment	Source	Gold Fine	Silver Fine
Granulated Gold.....	Mint Office. ....	671.582	.....
Gold Medal Scrap.....	Mint Office. ....	29.508	.....
Gold Coin Scrap.....	Mint Office. ....	.653	.....
Special Gold Bars.....	Mint Office. ....	2,010.059	.....
Silver Medal Scrap.....	Mint Office. ....	.....	460.66
Silver Coin Scrap.....	Mint Office. ....	.....	276.13
Miscellaneous Silver Scrap.....	Mint Office. ....	.....	765.53

Special Processes	Number	Gross Weight	—
Re-melts.....	404	309,806.250	.....
Toughenings.....	3	1,939.025	.....
Sweeps.....		*139,665.0	.....
Chloride Reduction.....		*88,350.0	.....

NOTE:—Weights in ounces troy, unless otherwise shown. \*pounds avoirdupois.



# ASSAY OFFICE, VANCOUVER, B.C.

Manager—F. R. MULFORD

The sum of \$4,385,194.32 was disbursed for gold bullion purchases and the following shows source, weights, etc. of the deposits:

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territory.....	250	97,442.07	77,491.298	16,719.60
British Columbia.....	258	46,306.91	40,306.732	3,575.00
Alberta.....	9	100.23	76.862	6.99
Saskatchewan.....	0			
North West Territories.....	0			
Jewellery and Dental Scrap...	119	2,781.85	1,186.926	499.26
	636	146,631.06	119,061.818	20,800.85

## COMPARATIVE STATEMENTS

(1) TOTALS FOR EACH YEAR UNDER ABOVE HEADINGS, 1943 TO 1951 INCLUSIVE:

1943.....	722	80,552.50	63,312.314	11,630.24
1944.....	577	48,983.87	37,679.028	7,649.55
1945.....	499	61,113.31	48,131.200	8,923.70
1946.....	603	85,071.57	67,325.255	12,923.84
1947.....	578	76,041.64	59,739.223	11,595.18
1948.....	621	110,223.80	88,267.384	15,725.07
1949.....	708	135,157.31	107,522.943	20,564.73
1950.....	777	161,652.46	130,023.960	23,400.03
1951.....	636	146,631.06	119,061.818	20,800.85

(2) TOTALS FOR EACH YEAR, 1943 TO 1951 INCLUSIVE, DISBURSED FOR GOLD BULLION PURCHASES:

1943.....	\$2,414,688.10
1944.....	1,436,665.86
1945.....	1,835,799.67
1946.....	2,406,170.90
1947.....	2,081,867.67
1948.....	3,077,555.15
1949.....	3,903,665.49
1950.....	4,922,946.70
1951.....	4,385,194.32

## GENERAL

The annual stocktaking and inspection of the store of bullion and coin, as required by the Act establishing the Royal Canadian Mint, was conducted by the officers of the Auditor General's Department in March.

The Assay Commissioners, Mr. W. R. Inman of the Mineral Dressing and Process Metallurgy Division, Department of Mines and Technical Surveys, Dr. G. L. Osberg, Chemistry Branch, National Research Council and Dr. W. E. K. Middleton, Division of Physics, National Research Council, appointed



under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1950 had been minted in accordance with the provisions of the said Act, were sworn by His Honour, Judge A. G. McDougall, on the 6th day of May, 1951.

The findings of the Commissioners indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act.

Fourteen thousand, eight hundred and sixty-six visitors were admitted to view the coining operations of the Mint during the year.

The number on the staff as at 31st December 1951, was 224. Of this number 28 were employed in the Administrative and Mint Office, 141 in the Coining and Medal Division, 14 in the Assay Division, 32 in the Refinery and 9 in the Assay Office at Vancouver.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and in Appendix "B" are given the details of the coin issues in Canada since 1858.

I am, Sir,

Your obedient Servant,

W. C. RONSON,  
Master, Royal Canadian Mint.

## APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on January 2, 1908, to its disestablishment on November 30, 1931, and of the Royal Canadian Mint from December 1, 1931 to December 31, 1951.

YEAR	GOLD RECEIVED		GOLD ISSUED		
	Gross Weight	Statutory Value Gold only	Coin	Bullion	Statutory Value Coin and Bullion
	Ounces	\$	\$	Ounces Fine	\$
1908 to 1941.....	83,392,336.615	1,392,148,535.51	7,923,908.73	66,875,857.747	1,390,370,566.02
1942.....	5,761,045.973	95,338,135.90	.....	4,611,892.227	95,336,270.79
1943.....	4,456,437.559	74,769,168.35	.....	3,645,739.964	75,364,131.92
1944.....	3,537,734.636	59,163,794.79	.....	2,829,755.000	58,496,226.17
1945.....	3,102,991.020	51,750,218.87	.....	2,499,163.674	51,662,297.22
1946.....	3,271,246.445	54,826,765.59	.....	2,665,964.763	55,110,381.61
1947.....	3,559,496.703	59,296,515.31	.....	2,859,084.218	59,102,514.80
1948.....	4,252,389.454	70,325,402.34	.....	3,405,073.335	70,389,111.41
1949.....	4,941,749.248	81,149,717.63	.....	3,865,296.377	79,902,766.08
1950.....	5,485,956.751	91,430,862.97	.....	4,347,961.898	89,880,347.18
1951.....	5,246,758.942	86,190,788.36	.....	4,167,485.874	86,149,576.49
127,008,143.346		2,116,389,905.62	7,923,908.73	101,773,275.077	2,111,764,189.69

# APPENDIX B COIN ISSUED IN CANADA

		SILVER							NICKEL	TOMBAC	STEEL	BRONZE						
		Dollar \$	50c. \$	25c. \$	20c. \$	10c. \$	5c. \$	Total Silver \$	5c. \$	5c. \$	5c. \$	1c. \$	1c. \$					
1858 to 1907	New Brunswick, 1851, 2 and 4;				60,000	25,000	10,000	95,000				20,000	1,114					
	Nova Scotia, 1861, 2 and 4;											26,000	4,000					
	Prince Edward Island, 1871.											10,000						
	Rest of Canada, 1858-1907.		1,249,018	5,094,978	150,000	3,040,000	2,926,000	12,459,996				803,315						
	Totals		1,249,018	5,094,978	210,000	3,065,000	2,936,000	12,554,996				859,315	5,114					
GOLD																		
		Sovereigns £	\$10 \$	\$5 \$														
1908																		
to																		
1940		627,834	3,480,380	1,388,070	2,285,852	4,041,900	14,686,725	00	9,303,444	00	3,084,802	33,402,723	00	4,042,200	00	3,397,706	00	
1941					842,000	1,718,000	00		974,000	00		3,534,000	00	454,000	00	575,300	00	
1942					1,022,000	1,708,000	00		1,034,000	00		3,764,000	00	361,575	50	783,500	00	
1943					1,564,000	3,402,000	00		2,078,000	00		7,044,000	00			881,300	00	
1944					1,230,000	1,818,000	00		958,000	00		4,006,000	00			454,600	00	
1945					38,300	980,000	1,324,000	00	1,074,000	00		3,416,300	00			748,500	00	
1946					91,000	400,000	556,000	00	654,000	00		1,701,000	00			528,500	00	
1947					67,000	278,000	397,000	00	444,000	00		1,185,000	00			360,300	00	
1948	dated 1947				21,876	30,242	1,099,038	75	983,424	20		2,134,580	95			452,296	05	
1948	dated 1948				8,080	17,758	632,951	25	36,575	80		695,375	05			256,003	95	
1949					641,840	429,001	1,956,000	50	1,112,000	60		4,148,842	10			321,901	02	
1950					299,713	1,154,054	2,394,027	00	1,794,011	40		5,641,805	40			607,003	08	
1951					411,823	1,238,499	2,105,240	00	1,458,115	10		5,213,677	10			783,329	12	
					3,855,484	14,476,472	38,901,970	50	210,000	24,968,571	10	88,443,299	60	7,856,789	20	1,704,129	35	
		627,834	3,480,380	1,388,070							6,020,802				1,407,824	50	11,009,554	22
																5,114		

\* Of this amount \$15,000 returned in 1940.

† This coin struck in 1943.

## APPENDIX C

SOR/51-503

## The Mint Custom Refining and Storing Regulations

P.C. 5774

AT THE GOVERNMENT HOUSE AT OTTAWA

FRIDAY, the 26th day of October, 1951.

PRESENT:

HIS EXCELLENCY THE GOVERNOR GENERAL IN COUNCIL

His Excellency the Governor General in Council, on the recommendation of the Minister of Finance, is pleased to make the annexed Regulations prescribing the circumstances under which and the conditions upon which gold will be accepted at the Royal Canadian Mint for custom refining and storing, and the said Regulations are hereby made and established, accordingly.

N. A. ROBERTSON,  
*Clerk of the Privy Council.*

REGULATIONS PRESCRIBING THE CIRCUMSTANCES UNDER WHICH AND THE  
CONDITIONS UPON WHICH GOLD WILL BE ACCEPTED AT THE  
ROYAL CANADIAN MINT FOR CUSTOM REFINING AND STORING

1. These Regulations may be cited as the Mint Custom Refining and Storing Regulations.

2. In these Regulations,

- (a) "designated gold" means gold produced from the mine of a producer in the year 1951, on or after the elected date;
- (b) "elected date" means, with respect to a producer, the first day of October, November or December, in the year 1951, as the producer designates, with the approval of the Minister, in making his election in Form A;
- (c) "Gold Bullion Regulations" means the Regulations for the Receipt of Gold Bullion at the Royal Canadian Mint, Ottawa, established by Order in Council P.C. 461 of March 7, 1934;
- (d) "Minister" means the Minister of Finance;
- (e) "Mint" means the Royal Canadian Mint;
- (f) "producer" means a person or corporation engaged in producing gold from a mine who has on or before the first day of December, 1951, made an election by instrument in Form A, delivered to the Minister; and

- (g) "processor" means a person or corporation engaged in the business of processing gold in Canada who makes application and gives an undertaking in Form B, and whose application has been accepted by the Minister and who has not subsequently been disqualified under section eight.

3. (1) Upon application by a producer in Form C the Minister may accept designated gold at the Mint for assaying, refining and storing on behalf of the producer.

(2) Where a producer, in accordance with a licence issued under the Gold Export Act,

- (a) ships designated gold from Canada to be smelted or refined and subsequently sells the refined gold outside Canada, or

- (b) sells designated gold to a smelter or refiner outside Canada,

at a price that, in the opinion of the Minister does not exceed the Mint price, the Minister may, upon being satisfied that the gold has been so sold, sell to the producer an amount of gold equivalent to the amount so sold and, subject to section four, store it at the Mint for the producer.

4. (1) Gold accepted at the Mint for assaying, refining or storing under these Regulations is so accepted subject to the condition that it will be released in the form of fine gold (.995 fine or better), only upon application in accordance with these Regulations made by or on behalf of the producer,

- (a) for sale and delivery to a processor in granulated form, in an amount that, in the opinion of the Minister, does not exceed the normal requirements of the processor for the ensuing thirty days, and if, in the opinion of the Minister, it will be used for *bona fide* industrial purposes in Canada;

- (b) for delivery to a processor to be processed and exported on behalf of the producer, in accordance with a licence issued under the Gold Export Act, in the form of gold of 22 karat or lower fineness, or

- (c) for sale to His Majesty at the Mint at the official price for the purchase of gold by His Majesty at the Mint for the week in which the sale is made,

and for no other purpose.

(2) Where gold is released from the Mint to a producer, pursuant to these Regulations, it will be delivered, at the Mint Counter at Ottawa, to a consignee designated by the producer, or to a carrier or other agent acting on behalf of the consignee.

5. (1) An application by a producer for sale and delivery of gold in accordance with paragraph (a) of section four shall be in Form D, and shall be accompanied by an offer to purchase gold in Form E.

(2) An application by a producer for delivery of gold in accordance with paragraph (b) of section four shall be in Form F and shall be accompanied by a copy of the offer to purchase the gold and the original or a photostatic copy of the import licence issued by the appropriate authority in the country of destination in respect of the proposed transaction, if such a licence is required.



6. The following Mint service charges are payable by a producer:

- (a) where gold is melted, assayed or refined for the producer at the Mint, an amount in respect of the melting, assaying or refining calculated at the rates then prescribed therefor by the Gold Bullion Regulations in respect of deposits of gold at the Mint, payable when billed;
- (b) one cent for every thirty days or fraction thereof (including the day on which the gold is received at the Mint but excluding the day on which it is shipped from the Mint) for each ounce of gold stored for the producer at the Mint, payable at the time of application for release of the gold or when billed, whichever is the earlier;
- (c) ten cents for each ounce of gold packed for shipment at the Mint on the direction of the producer, payable at the time of application for release of the gold; and
- (d) a handling charge of twenty cents for each ounce of gold sold to His Majesty, payable at the time of sale.

7. The silver content of the gold bullion delivered to the Mint by a producer under these Regulations may be purchased by His Majesty at the official price for the purchase of silver by His Majesty at the Mint for the week in which it is so purchased.

8. (1) Where a person or corporation engaged in the business of processing gold in Canada makes application and gives an undertaking in Form B, the Minister may accept the application if he is satisfied that the applicant is engaged in a *bona fide* enterprise for the processing of gold and will carry out the undertaking in good faith.

(2) Where the Minister has reason to believe that a processor has failed to carry out any part of the undertaking given by him in Form B, or that gold sold to a processor has been dealt with in a manner contrary to the undertaking, he may, by notice in writing delivered to the processor, disqualify the processor.

9. The Minister may, where he considers it necessary or advisable for the purpose of administering these Regulations, amend the forms and prescribe additional forms.

## MINT CUSTOM REFINING AND STORING REGULATIONS

## FORM A

## ELECTION BY A PRODUCER OF GOLD

To the Minister of Finance,  
Ottawa, Ontario.

We.....desiring to offer gold for sale in Canada or outside Canada, subject to the Gold Export Act, at prices other than the Mint price, hereby elect to avail ourselves of the facilities offered by virtue of the Mint Custom Refining and Storing Regulations and to deliver to the Royal Canadian Mint, gold produced from our mine in the year 1951, on or after the first day of.....in that year (hereinafter called the "elected date").  
(October, November or December)

We understand and agree that the Minister of Mines and Technical Surveys will not make any grant to us under the Emergency Gold Mining Assistance Act in respect of gold produced in the year 1951 on or after the elected date. We further understand and agree that in order to carry out this intention, the Minister of Mines and Technical Surveys, in computing the amount of any assistance to be paid to us under the Emergency Gold Mining Assistance Act will deduct from the amount that he would otherwise pay to us in respect of the designated year 1951 a fraction of that amount, the numerator of such fraction being the number of ounces of gold produced by us during 1951 on and after the elected date and the denominator of such fraction being the number of ounces of gold produced by us during the entire year 1951.

IN WITNESS WHEREOF our corporate seal has been affixed hereto attested by the proper officers in that behalf.

.....  
Producer

(Corporate Seal)

per.....

This form is to be accompanied by certified copies of by-law or resolution covering

- (a) Decision to forego a grant under Emergency Gold Mining Assistance Act in respect of the above production.
- (b) The appointment of signing officers to transact business on behalf of the Corporation in respect of the Mint Custom Refining and Storing Regulations, including the making of this election.

## MINT CUSTOM REFINING AND STORING REGULATIONS

## FORM B

APPLICATION FOR APPROVAL AS A PROCESSOR UNDER THE MINT  
CUSTOM REFINING AND STORING REGULATIONS.....  
Date

To the Minister of Finance,  
Ottawa, Ontario.

We hereby apply to be approved as a processor for the purposes of the Mint Customs Refining and Storing Regulations.

If such approval is given, we undertake

- (a) that gold delivered to us for a producer will be processed into gold of 22 karat or lower fineness;
- (b) that gold purchased by us will be processed in our own plant into gold of 22 karat or lower fineness and will be made available only for *bona fide* industrial purposes to a person or corporation engaged in a *bona fide* gold manufacturing business; and that we will accept any decision of the Minister of Finance as to whether or not any purpose is a *bona fide* industrial purpose or whether or not a business is a *bona fide* gold manufacturing business;
- (c) that we are and will continue to be engaged in the business of processing gold only for lawful and *bona fide* purposes;
- (d) that we will at all reasonable times make all documents, records and books pertaining to the buying, selling and processing of gold by us available to the Minister of Finance or his representative if required by him to do so and will give the Minister or his representative every facility necessary to inspect the said documents, records and books, and any stocks of gold in our possession or under our control; and
- (e) that we will, monthly or at such other times as the Minister may direct, furnish to the Minister a statutory declaration specifying the quantities of gold then in our custody or under our control, the quantities of gold received and delivered by us since the date of the previous declaration or in such other period as the Minister may prescribe, and our estimated requirements for the thirty-day period immediately following the declaration, or such other period as the Minister may prescribe.

If the Minister of Finance is of opinion that we have failed to carry out or comply with all or any part of this undertaking, or that gold sold to us has been dealt with in a manner contrary to this undertaking, he may disqualify us as a processor under the said Regulations. Any notice of disqualification may be sent by registered mail addressed to us at the address set out hereunder.

.....  
Name of Processor.....  
Authorized Signing Officer.....  
Address of Processor

MINT CUSTOM REFINING AND STORING REGULATIONS

FORM C

APPLICATION BY A PRODUCER FOR ASSAYING, REFINING AND STORING OF  
GOLD AT THE MINT

.....  
Date

To the Minister of Finance,  
Ottawa, Ontario.

We have forwarded to you on .....  
by ..... Express ..... oz. of gold in the  
form of ..... for melting and assaying and  
(rough gold, fine gold)

(a) refining and storing ( <sup>Check</sup> )  
(b) storing ( )

We hereby certify that this gold was produced in the year 1951 on or after  
the first day of ..... 1951. This gold is being delivered to you  
under the Mint Custom Refining and Storing Regulations, and we acknowledge  
that its release by the Mint is subject to the conditions set out in section four  
of the said Regulations.

.....  
Name of Producer

.....  
Authorized Signing Officer

## MINT CUSTOM REFINING AND STORING REGULATIONS

## FORM D

## APPLICATION FOR RELEASE OF GOLD FOR DOMESTIC CONSUMPTION

..... Date  
 To the Minister of Finance,  
 Ottawa, Ontario.

We attach an order from.....  
 Processor

..... for the purchase of..... oz.  
 Address  
 of fine gold in granulated form. This gold is being sold at \$ ..... per  
 fine ounce for manufacturing in Canada as set forth in the said order.

If this application is approved, please release..... oz. of fine  
 gold from gold stored on our behalf at the Royal Canadian Mint, and pack and  
 deliver it at the Mint counter at Ottawa, to the above-named processor or  
 ....., his agent in that behalf.

.....  
 Name of Producer

.....  
 Authorized Signing Officer

## MINT CUSTOM REFINING AND STORING REGULATIONS

## FORM E

## OFFER TO PURCHASE GOLD FOR DOMESTIC USE

(To be completed in duplicate and attached to an application in Form D)

..... Date  
 TO.....  
 Name of Producer

.....  
 Address of Producer

We.....  
 Name of Processor Address  
 hereby offer to purchase ..... oz. of fine gold in granulated form at  
 \$ ..... per fine ounce.

We undertake that this gold will be processed by us in our own plant and  
 will be sold only to persons or corporations who, to the best of our knowledge  
 and belief, will use it solely for *bona fide* manufacturing in Canada.

You may arrange for delivery of this gold at the Royal Canadian Mint,  
 Ottawa to..... who is our agent in that behalf.

.....  
 Processor

.....  
 Authorized Signing Officer



## MINT CUSTOM REFINING AND STORING REGULATIONS

## FORM F

APPLICATION FOR GOLD EXPORT LICENCE AND RELEASE OF GOLD  
TO BE EXPORTED

(To be completed in duplicate)

Date

To the Minister of Finance,  
Ottawa, Ontario.

1. We hereby apply for a gold export licence through.....

Name of Bank

Branch

....., for the export of.....oz.  
of.....karat gold to be shipped to.....

Name of Consignee

Address

2. Subject to the above licence being granted, we hereby make applica-  
tion for the release of.....oz. of fine gold from gold stored at the  
Royal Canadian Mint on our behalf to

Processor

Address

for processing into.....oz. of.....karat gold in the  
form of.....  
for sale and delivery to the consignee named above in the application for the  
gold export licence. This gold is being sold at \$ U.S.  
(or.....) F.O.B. ....per ounce  
.....karat, as per copy of order attached hereto.3. Copy of import licence No..... issued by.....  
..... is attached.

Authority in country of destination

4. This gold is to be delivered at the Mint counter, Ottawa, to.....  
....., our agent in that behalf.

We hereby apply for the above-mentioned licence.

Name of Producer

Authorized Signing Officer

Bank

per

Manager







Government  
Publications





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Canada. Royal Canadian Mint

Government  
Publications



DEPARTMENT OF FINANCE

# ROYAL CANADIAN MINT

Report  
For Calendar Year  
1952



EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1953





CANADA

DEPARTMENT OF FINANCE

# REPORT

of the

MASTER OF THE ROYAL CANADIAN MINT

For Calendar Year  
1952

Published by Authority of Hon. D. C. Abbott, M.P.  
Minister of Finance

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.  
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY  
OTTAWA, 1953





# ROYAL CANADIAN MINT

OTTAWA 2, ONTARIO.

The Honourable,  
The Minister of Finance,  
OTTAWA 4, Ontario.

SIR:

I have the honour to submit the following report on the operations of the Royal Canadian Mint during the calendar year 1952.

## ADMINISTRATIVE AND MINT OFFICE

*Chief Administrative Officer*—A. P. WILLIAMS

### COINAGE

There was a decrease of 13,808,415 in the number of coins issued during 1952 as compared with the previous year. A detailed statement of the issues by denomination for the years 1951 and 1952 is set out below:

Denomination	Coin Issued in					
	1951	1952				1952
		Dated 1949	Dated 1950	Dated 1951	Dated 1952	Total
	\$	\$	\$	\$	\$	\$
SILVER COIN—						
1 dollar.....	411,823.00	506.00	131.00	724.00	400,983.00	402,344.00
50 cents.....	1,238,499.00	91.00	64.50	10,413.00	1,129,590.00	1,140,158.50
25 cents.....	2,105,240.00	20.00	31.50	30,251.00	2,195,434.50	2,225,737.00
10 cents.....	1,458,115.10	11.90	12.60	65,117.20	1,036,171.20	1,101,312.90
Total Silver.....	5,213,677.10	628.90	239.60	106,505.20	4,762,178.70	4,869,552.40
NICKEL COIN—						
5 cents.....	423,003.20	5.80	6.80	585.20	.....	597.80
STEEL COIN—						
5 cents.....	182,829.35	.....	.....	32,705.65	544,259.35	576,965.00
BRONZE COIN—						
1 cent.....	783,329.12	0.29	0.21	29,458.29	654,362.07	683,820.86
Total.....	6,602,838.77	634.99	246.61	169,254.34	5,960,800.12	6,130,936.06
Number of Pieces						
Representing.....		1,032	669	4,405,372	98,125,007	
TOTAL.....	116,340,495	.....	.....	.....	.....	102,532,080

Distribution of the coin issued to the various Agencies of the Bank of Canada and Sundry Persons was as follows:

Agency	Silver				Nickel	Steel	Bronze
	Dollar	50 Cents	25 Cents	10 Cents	5 Cents	5 Cents	1 Cent
	\$	\$	\$	\$	\$	\$	\$
Calgary.....	43,000.00	65,000.00	242,000.00	109,000.00	.....	57,000.00	94,200.00
Halifax.....	6,000.00	76,000.00	133,000.00	86,000.00	.....	43,500.00	42,840.00
Montreal.....	83,000.00	3,000.00	351,000.00	71,000.00	.....	30,300.00	159,060.00
Ottawa.....	19,767.00	44,000.00	176,000.00	216,000.00	.....	79,560.85	10,000.00
Ottawa for Charlottetown.....		4,000.00				600.00	3,480.00
Ottawa for St. John's, Nfld.....	11,000.00	58,000.00	32,000.00	51,000.00	.....	23,400.00	29,580.00
Regina.....	7,000.00	84,000.00	251,000.00	141,000.00	.....	54,600.00	59,100.00
Saint John, N.B.....	2,000.00	10,000.00	93,000.00	36,000.00	.....	18,600.00	16,080.00
Toronto.....	184,000.00	585,000.00	558,000.00	316,000.00	.....	195,000.00	172,500.00
Vancouver.....	8,000.00	205,000.00	265,000.00	75,000.00	500.00	65,500.00	63,300.00
Winnipeg.....	27,000.00	5,000.00	124,000.00	.....	.....	8,400.00	33,600.00
Sundry Persons.....	11,577.00	1,158.50	737.00	312.90	97.80	504.15	80.86
Total.....	402,344.00	1,140,158.50	2,225,737.00	1,101,312.90	597.80	576,965.00	683,820.86

#### Worn and mutilated coin withdrawn from circulation:

	Withdrawn	Net Increase in Circulation
	\$	\$
Silver Coin.....	43,756.15	4,825,796.25
Nickel Coin—5 cents (mutilated only).....	1,302.50	.....
Tombac Coin—5 cents.....	14,773.50	.....
Steel Coin—5 cents.....	484.95	576,480.05
Bronze Coin.....	1,399.13	682,421.73

#### GOLD BULLION

Five thousand six hundred and two deposits of gold bullion were received at the Mint during the year from Canadian Mining Companies, the Assay Office, Royal Canadian Mint, Vancouver, B.C. and sundry persons. The gross weight of the deposits amounted to 4,981,971 ounces containing by assay 3,953,158 ounces fine gold and 625,601 ounces fine silver. (Note: The variation between these figures and those set out in the table of origin below is due to shipments from the Assay Office, Vancouver, being received at the Royal Canadian Mint, Ottawa, the month following deposit and payment at Vancouver). The receipts show a decrease as compared with the year 1951 of 174 in the number of deposits, gross weight 264,788 ounces, gold content 216,322 ounces and fine silver 25,403 ounces.

The net value paid by cheque to depositors was \$94,319,844.64. In addition the amount of fine gold issued to depositors was 1,094,702.594 ounces.

Details of the origin of the bullion deposited at Vancouver and Ottawa during the year 1952 are shown in the following table:

From Canadian Mines and Refineries	Gross Weight	Fine Gold	Fine Silver
	Ounces	Ounces	Ounces
Ontario.....	3,048,235.971	2,521,444.981	315,081.77
Quebec.....	1,074,289.075	765,409.648	189,304.70
British Columbia.....	229,291.835	181,147.784	29,815.04
Manitoba.....	161,409.000	132,566.983	13,816.21
Yukon Territory.....	97,952.780	78,518.648	16,315.01
Nova Scotia.....	8.850	1.308	6.65
North West Territories.....	328,367.535	243,038.999	58,632.34
Alberta.....	149.025	112.511	10.22
Total from Canadian Mines and Refineries.....	4,939,704.071	3,922,240.862	622,981.94
From Jewellery and Scrap.....	27,817.955	14,941.195	2,511.15
GRAND TOTAL.....	4,967,522.026	3,937,182.057	625,493.09

The following table shows the disposition of the fine gold produced in various forms (trade bars, granulated gold, sweep, medals, etc.):

	Ounces Fine
7,249 Trade Bars transferred to Exchange Fund Account of Minister of Finance and held in safe-keeping by Bank of Canada.....	2,900,578.893
Depositors—granulated and bars.....	1,094,702.594
Sales to Manufacturers—granulated.....	26,352.213
Proof Plate for assay purposes.....	4.250
Medals, etc.....	5.250
Sweep.....	9,420.115
	4,031,063.315

This total shows a decrease of 136,422.559 ounces fine as compared with the year 1951.

### Designated Gold

During the year twenty-three mines deposited gold bullion under the terms of the Regulations prescribing the circumstances under which and the conditions upon which gold will be accepted at the Royal Canadian Mint for Custom Refining and Storing. (Appendix "C").

The fine gold content of the bullion deposited under this heading in 1952 amounted to 1,073,742 ounces. Fine bullion amounting to 1,081,816 ounces was issued on behalf of the mines to processors for export and domestic use.

### COINING AND MEDAL DIVISION

Chief—R. J. EDMUNDS

In 1952 the demand for coin of all denominations was continuous and pressing, and production for the year again exceeded the 100 million mark. During the whole period under review, except for six weeks in the heat of the

summer, this Division operated daily on a two shift basis, and for several months in the spring and autumn it was found necessary to have recourse to overtime as well. By 1st August an accumulated stock of over 68,000,000 good blanks and coins had been built up to meet the usual heavy demands for coin in the latter part of the year, and to provide for future exigencies when work stoppage during the dismantling, moving and installing of coinage equipment in the new building might temporarily interfere with the production.

Canada has adopted for its coins the same uncrowned or classical Effigy as the United Kingdom, Australia, New Zealand, the Union of South Africa, Southern Rhodesia and Ceylon. Canada, however, will continue to use the form of inscription or Royal Title adopted some years ago. This inscription will read: "Elizabeth II Dei Gratia Regina".

Her Majesty's profile on the coins is facing towards the right. It is a tradition in coinage practice that the Royal Effigy of a new sovereign should face in the direction opposite to that used on coins issued in the reign of the preceding sovereign.

Selection of the design for the Royal Effigy was made by a Royal Mint Advisory Committee on the Design of Coins, Medals, Seals and Decorations under the presidency of H.R.H. The Duke of Edinburgh, K.G., F.R.S.

Seventeen artists sent in models for the design for the Uncrowned Effigy of the Queen and that of Mrs. Mary Gillick was finally selected. Mrs. Gillick was accorded the privilege of sittings by Her Majesty.

For the first time in the history of Canadian coinage, the master dies are being made at the Royal Canadian Mint, Ottawa. The plaster model of the Uncrowned Royal Effigy was sent to Canada from the Royal Mint, London. The inscription was cut in the plaster model surrounding the Effigy and an electrotype made, from which the dies are being reduced to the dimensions of all denominations of Canadian coins.

The new design was authorized by Proclamation effective November 25, 1952, and with the reverses is described in Appendix "F".

The following table sets out by denomination the number of coins produced in 1951 and 1952:

CANADA	1951	1952
	Pieces	Pieces
SILVER, 800 FINE—		
1 dollar (1952 figure includes 5,000 coins dated 1951)....	411,395	411,148
50 cents (1952 figure includes 720 coins dated 1951)....	2,421,010	2,597,185
25 cents (1952 figure includes 5,120 coins dated 1951)....	8,285,599	8,864,762
10 cents.....	15,079,265	10,474,455
NICKEL, PURE—		
5 cents.....	8,329,321	.....
STEEL—		
5 cents.....	4,313,410	10,891,148
BRONZE—		
1 cent.....	80,430,379	67,631,736
TOTAL.....	119,270,379	100,870,434



Details of the weights of silver bullion, copper and other metals used in the casting of coinage bars, bars rolled, blanks cut and good coin produced are summarized below:

CANADA	Bars Cast	Bars Rolled	Blanks Cut	Good Coin Produced
	Ounces	Ounces	Ounces	Ounces
SILVER (800 fine)—				
1 dollar.....	1,223,250.49	915,097.59	371,797.60	313,830.18
50 cents.....	1,839,824.70	1,759,194.00	1,083,277.94	977,652.50
25 cents.....	4,235,514.50	3,491,751.30	2,276,037.38	1,676,420.58
10 cents.....	1,904,933.50	1,609,128.60	999,855.57	817,728.45
Total Silver....	9,203,523.19	7,775,171.49	4,730,968.49	3,785,631.71
	Pounds	Pounds	Pounds	Pounds
STEEL—				
5 cents.....			*114,411.40	105,480.22
BRONZE—				
1 cent.....	1,100,222.53	1,028,016.40	677,712.00	486,309.62
	Short Tons	Short Tons	Short Tons	Short Tons
	865.7	780.6	558.2	425.7 <sub>3</sub>

\* Produced from 169,992.80 pounds of steel strip.

## Melting House

Additional work performed and research experiments carried out are detailed in the following statements:

Worn silver coins withdrawn from circulation and cast into ingots for assaying and conversion to 800 standard coinage bars.....	40,010 ounces
Tombac coins withdrawn from circulation and cast into one-cent coinage bars.....	2,938 pounds
Bronze worn coins withdrawn from circulation and cast into one-cent coinage bars.....	1,215 pounds
Silver Bullion and Metal Cast for Medals:	
Sterling silver for Governor General's Medals and Crests...	1,081 ounces
Tombac metal for Academie Canadienne Francaise Medals.	170 pounds
Tombac metal for Governor General's Medals.....	100 pounds
Tombac metal for Massey Foundation Medals for Architecture.....	100 pounds
Copper granulated.....	983 pounds
Tin ingots melted and cast into convenient slabs for the one-cent alloy.....	3,557 pounds
Zinc cast into convenient slabs for the one-cent alloy.....	1,227 pounds

## Experimental

Three bars of coinage silver 2" × 8" × 24" were cast under the supervision of the Department of Mines and Technical Surveys, Division of Physical Metallurgy, in a water-cooled mould lent by that Department. The main object of the experiments was to investigate the segregation of silver in the alloy 800 silver, 200 copper, in a bar 2" × 8" × 24" cast in a water-cooled mould. It was found that there was a tendency for the silver to segregate at the centre of the bar towards the top. The Division of Physical Metallurgy in their report arrived at the following conclusions:



1. The following conditions of melting and casting could be considered fairly satisfactory in casting  $24'' \times 8'' \times 2''$  slabs of Ag-20 per cent cu. alloy within the 6 per 1,000 limit of segregation:

- (a) Melting temperature should not exceed 940 C; 1,724 F.
- (b) Pouring temperature, 900-910 C.; 1,652-1,670 F.
- (c) Pouring without delay, to preserve influence of the stirring action during induction melting.
- (d) Mould temperature around 80 C; 176 F; maintained by hot water inside the cooling jacket.
- (e) Ratio of cooling water flow 10 gallons per minute.
- (f) Pouring speed, approximately 1 inch per second.

2. The mould should be tapered outwards to the top to counteract the excessive solidification shrinkage that occurs in the upper sections.

3. Further investigation as to the influence of the cooling ratio on inverse segregation should be undertaken if more rigid control of segregation is necessary.

### Use of Phosphor Copper in Coinage Silver

Four experimental 25c. pots of coinage silver were cast with the addition of 1.25 ounces of phosphor copper shot per 3,000 ounces with a view to reducing the number of dumb pieces found in the Examining Room.

### Rolling Room

Work performed in addition to the 780 tons of coinage bars rolled consisted of:

- 1. 3,632 ounces of fine silver bars for  $2\frac{1}{2}$ , 10 and 26 grain discs; 331 ounces copper for 1 grain discs; 100 ounces gold proof plate; 50 ounces silver proof plate; 580 pounds lead for lead discs; all for the Assay Division.
- 2. 5,540 ounces of fine gold rolled to 10/1000" gauge for the anodes in the electrolytic plant in the Refinery.
- 3. Sterling silver for the Governor General's Medals and Crests, 1,081 ounces; Tombac metal for Academie Canadienne Francaise Medals, Governor General's Medals, and Massey Foundation Medals 270 pounds.

### Cutting Room

The blank cutting presses have now been equipped with sorting screens for the 50-cent and \$1.00 blanks. The vibrating screens installed the previous year for the other denominations have proven 99 per cent efficient in separating notched and defective blanks from good pieces, with the result that hand sorting has been eliminated and a considerable saving in man power effected.

The method of edge marking the coin blanks was speeded up to keep pace with the increased blank production. Two automatic hoppers, designed and machined in our own shop, to feed the blanks by centrifugal force to the upsetting rings and segments were installed, one on each side of the marker. This improved arrangement has speeded production to 4,000 pieces per minute compared to 1,400 when fed by hand. In order to make possible the dual operation of this machine, it was necessary to equip it with four pilot wheels to supplement the main bearings and keep the blanks within the prescribed tolerances of the diameters required.

Two old type markers have been scrapped as surplus equipment and the men who had been operating these machines are employed on other duties.

## Press Room

Three coining presses are now each equipped with an automatic hopper feed mechanism and safety devices. By this method one attendant operates two presses. Any interruption of the constant feeding of blanks to the dies is made known by the ringing of an alarm bell.

The number of dies used for each denomination, and the average production of coins for each pair of dies for the years 1951 and 1952 are shown in the table below:

Denomination	1951			
	Number of Good Pieces Coined	Number of Dies Used		Pieces per Pair of Dies
		Obverse	Reverse	
\$1.....	411,395	111	65	4,675
50 cents.....	2,421,010	55	47	47,471
25 cents.....	8,285,599	192	197	42,709
10 cents.....	15,079,265	348	267	49,118
5 cents.....	12,642,731	194	191	65,848
1 cent.....	80,430,379	158	150	522,270
	119,270,379	1,058	917	
	Average per pair of dies.....			120,840
	1952			
	Number of Good Pieces Coined	Number of Dies Used		Pieces per Pair of Dies
		Obverse	Reverse	
\$1.....	417,961	82	58	5,971
50 cents.....	2,606,896	93	66	32,999
25 cents.....	8,941,815	223	377	29,806
10 cents.....	10,906,655	345	256	36,356
5 cents.....	10,921,047	105	108	103,029
1 cent.....	68,117,890	170	140	439,470
	101,912,264	1,018	1,005	
	Average per pair of dies.....			100,704

## Die and Medal Branch

### Coinage Dies

The Die Department prepared 2,154 matrices, punches and dies, including 1953 new coinage, compared with 2,137 in 1951.

### Seals

At the request of the Secretary of State the Privy Seal of the Governor General of Canada was prepared, with His Excellency's Coat of Arms and the inscription "THE RIGHT HONOURABLE VINCENT MASSEY C. H.". The seal was first sculptured by the Mint Engraver from sketches of His Excellency's Coat of Arms 14" in diameter. A plaster model and electrotype were made; from the latter the design was engraved in a steel block 3" in diameter on the reducing machine.

The model was also used to engrave a duplicate seal 2-7/16" diameter, without inscription, for His Excellency's personal use at Government House.

Both seals were provided with counterparts and fitted to their respective seal press.

### *Medal Dies*

His Excellency the Governor General commissioned the Mint Engraver to prepare models for the Governor General's medals. For the obverse a portrait model was made in clay from photographs of Mr. Massey. After approval of the model a plaster cast was taken large enough for the rings and garter and turned in the lathe to 14 inches diameter. The inscription "HIS EXCELLENCY THE RT. HON. VINCENT MASSEY, C. H., GOVERNOR GENERAL OF CANADA" was cut by hand in the garter surrounding the head. An electrotype was made from the completed plaster model in relief, from which the 2-1/16" diameter steel punch was reduced on the three dimensional machine. The obverse working die was sunk from this punch. His Excellency's Coat of Arms was taken for the reverse design, similar to the Governor General's seal without inscription. The reverse die was engraved on the reducing machine in intaglio, 2-1/16" diameter.

Four dies of the design of His Excellency the Governor General's crest were engraved by hand, one  $\frac{5}{8}$ " and one  $\frac{3}{4}$ " in brass for the imprinting of gold leaf on leather, one  $\frac{1}{2}$ " in steel and trimming tools for silver and gold crests, and one  $\frac{3}{4}$ " steel plate die for printing.

### **Miscellaneous**

The Royal cipher and crown (chased to represent the jewels) of His late Majesty King George VI was made for the Canadian Government Wreath used at the Memorial Service of His Majesty on February 15, 1952.

Six plaques 14" diameter were cast in bronze to represent the reverses of 1951 coins, and placed in the new Press Room over the East and West entrances to denote the year in which the new extension was built.

### **Medals**

Twelve medals 3-3/16" diameter were struck in bronze for the Académie Canadienne Française, Montreal, from dies prepared by M. Raymond Delamarre, of France.

Two medals were engraved with the names of A. Gabrielle Roy, 1946, and A. Germaine Guevremont, 1947.

Three hundred and nineteen Governor General's medals, 2-1/16" in diameter, were struck on behalf of His Excellency the Right Honourable Vincent Massey, C. H. There were 232 in toned bronze, 77 sterling silver, and 10 gold (silver gilt) medals. Two hundred and sixteen  $\frac{1}{2}$ " crests were struck in sterling silver for the Governor General.

Nine Massey Medals for Architecture were struck, 3- $\frac{1}{2}$ " diameter, in gold and silver finish, as awards by the Massey Foundation to recognize outstanding examples of Canadian achievement in the field of Architecture. The names of the recipients were engraved around the edge on the reverse of the medal. The awards were made at an exhibition held under the sponsorship of the Royal Architectural Institute of Canada.

Six Mint Long Service silver medals were engraved with the names of those members of the Mint Staff who became eligible in 1951 for the Long Service medal after forty years service.



For the Royal Society of Canada, one medal was struck in 14 carat and one in fine gold:

One Flavelle Medal, 14 carat, engraved "A. G. Huntsman, 1952"

One Tyrrell Medal, fine gold, engraved "C. B. Sissons, 1952"

For the Engineering Institute of Canada, five medals were struck in 10 carat gold, and two in bronze:

One Leonard Medal, engraved "George S. Hume, 1951"

One Gzowski Medal, engraved "F. M. Wood, 1951"

One Plummer Medal, engraved "R. H. Hall, 1951"

One Keefer Medal, engraved "T. A. Monti, 1951"

One Ross Medal, engraved "P. L. Mathewson, 1951"

Two Julian C. Smith Medals in bronze: engraved "Fred V. Seibert 1951" and "R. L. Weldon, 1951"

For the Professional Institute of the Public Service of Canada one medal, 14 carat gold, was engraved with the name of the recipient, "Andrew Thomson, 1952".

One Webster Memorial Trophy Medal for Good Airmanship was struck in bronze and forwarded to the Director of Services, Department of Transport.

Four hundred Canadian Forces Decorations, struck and assembled in 1951, were delivered to the Department of National Defence.

The brooch for the Cadet "Award for Bravery" was re-designed. The new design bears the word "Canada" and has a slot through which the suspender ribbon passes. Twenty-five of these revised brooches were delivered to the Department of National Defence.

For the War Service Records Division of the Department of Veteran's Affairs, an additional number of clasps, second award bars, to the Campaign Stars of World War II were struck, as below:

100 African Star "1st Army"

100 African Star "8th Army"

300 African Star "North Africa 1942-43"

## New Effigy Queen Elizabeth II

As soon as the plaster cast of Her Majesty's effigy was received from the Royal Mint, a cast was taken from it in intaglio for the carving of the inscription, which reads "ELIZABETH II DEI GRATIA REGINA".

When coining dies are subsequently prepared from plaster models, the pantographic die-cutter is used to engrave the master dies, taking the place of hand engraving with graver tools and punches. A large copper electrotype, chromium plated, 8" or 9" diameter, 120 thousands of an inch thick, is grown in a plating tank from the plaster model. From this electrotype an intermediate steel matrix in relief 3- $\frac{1}{4}$ " diameter is mechanically reproduced on the reducing machine with the utmost fidelity to the artist's original model. The hardened steel matrix can then be used as the model from which to engrave the punches for the sizes of dies required to strike the various denominations of coins.

This was the procedure followed here to execute the design of the Queen's effigy and inscription for the obverses of the new coins, except that, to preserve the original master punches from damage and wear, another matrix for each denomination was struck from this "reduction" punch, a working punch was then struck, which is the tool actually used for producing the dies which strike the design on the coins. Eighty-nine obverse working dies were made in 1952 for the 1953 coinage.

## Mechanical Branch

In addition to considerable amount of running repairs, renewals of worn parts and general maintenance, this branch carried out the manufacture of several accessories to various minting machines and attended to the installation of a great part of the new machinery added during the year to the general equipment. Many machines also had to be moved to make room for the contractors, and installed in position for work in the new building.

The main drive gears and bearings on the 14" X 16" rolling mill had become so worn after many years use that they were in a dangerous condition. Rather than purchase a complete new mill the drive only was revamped at a substantial saving in cost. An enclosed, silent herring-bone gears, mill drive unit, consisting of combination pinion stand and drive with spindles and couplings, with a partial bed-plate of cast iron clamped to the existing bed-plate, was installed by the staff under the Superintendent of the Mechanical Division.

Three hopper feeds for blanks and coins were designed, attached and made operable on the Marking machine and one Coining Press. Several types of hopper feeds were made and tried out on the proposed high frequency method of blank annealing.

Considerable time was spent on the coin telling machines making changes and new parts to adapt the machines for the counting of Canadian size coins more efficiently.

The furnaces and tanks in the Annealing and Blanching room, now enlarged, were rearranged during the year, pending the arrival of the new annealing equipment.

Work for the Assay Office consisted partly of rebuilding electric furnaces, overhauling and repairing shaker.

The steam heating coil in the large hot water tank in the Refinery was removed, also the 2-inch drain piping.

The Medal branch machinery was moved into position in the new extension.

The steam table was rebuilt in the employees dining room.

## Electrical Branch

The electricians had a considerable increase of work to do in 1952 due mostly for the change over that was begun the previous year. This work was necessary in order to move certain equipment to a temporary position to allow the rebuilding work to go on and at the same time maintain production.

Electrically operated lift trucks were put into service for use in lifting heavy loads of coinage bars, bags of coin, gold bars and other heavy work.

With the ever increasing use of pyrometers, both indicating and controlling temperatures of electric furnaces throughout the Mint, it was deemed necessary to have some means of keeping these instruments in a state of high accuracy. A precision potentiometer was purchased to do this work and it has proven its worth.

When dismantling the Medal branch and moving the electrical apparatus to the new location the electricians attended to the removal and handling of all electrical equipment.

The control panels were moved to another position in the Annealing room to permit the necessary change in this room. In conjunction with the mechanical branch, several blank feeding hoppers were electrically equipped with the necessary apparatus.

High frequency research and experimentation was carried out to the point of actual annealing coin blanks. Some adjustments must be made to overcome minor difficulties, but complete plans and drawings were made of a system suitable to the Mint's present and future annealing needs.



No major breakdowns occurred this year to interfere with production, but attention was given to minor items as follows:

- 389 trouble calls
- 27 motor and transformer rewindings
- 237 normal wear and depreciation repairs
- 27 welding jobs, including the making of new parts
- 137 wiring jobs on installation or change of location of equipment.

### ASSAY DIVISION

Chief—W. A. HAWKEY

The number of assays made in the department from January 1 to December 31, 1952, was as follows:

GOLD—		
Refinages.....	5,432	
Rough Gold.....	32,281	
Proofs.....	3,159	
Parting Proofs.....	845	
Parting Buttons.....	11,722	
Miscellaneous.....	1,697	
		55,136
SILVER—		
Standard Bars.....	9,240	
Pyx.....	2,325	
Proofs.....	641	
Fine Silver.....	1,009	
Worn Coin.....	112	
Miscellaneous.....	263	
		13,590
MISCELLANEOUS—		
Checks for sundry persons.....	27	
Mint Residues (sweeps, etc.).....	504	
		531
TOTAL.....		69,257

The mean finenesses of the Silver Coinage struck in 1952 were as follows:

Denomination	Standard	Mean Fineness
1 dollar.....	800.00	799.88
50 cents.....	800.00	799.22
25 cents.....	800.00	799.37
10 cents.....	800.00	799.23

Gold-Silver bullion with a gross weight of 4,966,104.406 ounces was received, comprising the following:

- FINE GOLD—
  - 208 deposits weighing 400,597.717 ounces of a mean finess of 996.881
- CRUDE BULLION—
  - 4,998 deposits weighing 4,405,258.914 ounces with an average finess of 774.720 gold, 147.071 silver and containing 7.8209 per cent base metal.
- SCRAP (Jewellery and Dental)—
  - 184 deposits weighing 26,545.275 ounces with a mean fineness of 541.765 gold and 96.869 silver.

FROM VANCOUVER ASSAY OFFICE—

212 ingots—133,702.500 ounces at 828.151 gold and 155.563 silver.

Two working trial plates, one each of gold and silver, were made and fixed against our standards. Four and a quarter ounces of gold proof and four ounces of silver were sold.

Eighty suspected coins were received from the Royal Canadian Mounted Police. Seventy-five of those (seventy-one fifty cent and four twenty-five cent pieces) were established as spurious.

One hundred and twenty-nine articles were electroplated for the Coining and Medal Division, eight with silver and the remainder with gold.

## REFINERY DIVISION

Chief—C. J. MORRIS

### Re-Construction

Alterations to the second floor of the Refinery building are nearing completion.

A change in the regulations calls for a maximum weight of 1,200 ounces for each bullion bar received, in place of the previous maximum of 1,500 ounces. This has, of course, caused a slight relative increase in the number of deposits per unit mass.

A summary of the year's work is shown in the following table:

Source	Number of Deposits	Fine Gold	Fine Silver
		Ounces	Ounces
Mines.....	3,703	2,754,308.283	603,832.97
Vancouver Assay Office.....	212	110,725.828	19,462.10
Miscellaneous.....	184	14,381.302	2,305.97
Designated Gold.....	1,503	1,057,882.976	

Refined and Delivered	Number	Gross Weight	Fine Weight	Average Assay
Fine Gold Bars.....	7,184	2,883,692.675	2,874,986.520	997.0
Granulated Gold.....		35,587.425	35,574.260	999.6
Fine Silver Bars.....	556	618,647.46	618,493.03	999.7
Granulated Silver.....		3,146.37	3,145.74	999.8
Special Gold Bars.....	27	9,074.810	9,070.150	999.5
Special Silver Plate.....			32.92	.....
Designated Gold Bars.....	2,331	934,872.532	932,008.842	996.9
Designated Granulated Gold.....		86,326.250	86,289.690	999.6
Designated Special Bars.....	2	370.385	370.274	999.7

Special Processes	Number	Ounces Troy
Remelts.....	376	295,833.860
Toughenings.....	12	4,177.550
		Pounds
Chloride Reduction.....		84,273.0
Sweeps.....		150,749.0

# ASSAY OFFICE, VANCOUVER, B.C.

*Acting Manager—K. C. WEST*

Disbursements for the purchase of gold bullion amounted to \$3,742,509.52.

The following table gives particulars as to the source, weights, etc. of the deposits:

Source	Number of Deposits	Gross Weight	Fine Gold	Fine Silver
		Ounces	Ounces	Ounces
Yukon Territories.....	255	97,948.78	78,515.236	16,314.64
British Columbia.....	219	35,768.56	31,434.662	2,825.16
Alberta.....	11	127.49	97.674	8.98
Saskatchewan.....	2	2.61	2.031	0.19
North West Territory.....	0			
Jewellery and Dental Scrap.....	62	1,272.68	559.893	205.18
	549	135,120.12	110,609.496	19,354.15

## COMPARATIVE STATEMENTS

### (1) TOTALS FOR EACH YEAR, 1944 TO 1952, INCLUSIVE

1944.....	577	48,983.87	37,679.028	7,649.55
1945.....	499	61,113.31	48,131.200	8,923.70
1946.....	603	85,071.57	67,325.255	12,923.84
1947.....	578	76,041.64	59,739.223	11,595.18
1948.....	621	110,223.80	88,267.384	15,725.07
1949.....	708	135,157.31	107,522.943	20,564.73
1950.....	777	161,652.46	130,023.960	23,400.03
1951.....	636	146,631.06	119,061.818	20,800.85
1952.....	549	135,120.12	110,609.496	19,354.15

### (2) TOTALS FOR EACH YEAR, 1944 TO 1952, INCLUSIVE, DISBURSED FOR GOLD BULLION PURCHASES

1944.....	\$1,436,665.86
1945.....	1,835,799.67
1946.....	2,406,170.90
1947.....	2,081,867.67
1948.....	3,077,555.15
1949.....	3,903,665.49
1950.....	4,922,946.70
1951.....	4,385,194.32
1952.....	3,742,509.52

## Residue Bar

A residue bar resulting from the treatment of floor sweeps, pot and furnace scrapings, sink trap, and general cleanup during the calendar year 1952, weighed 24.27 ounces after melting and assaying and contained 18.294 ounces of fine gold and 4.42 ounces of fine silver.

## Equipment

A small Hevi-Duty electric muffle equipped with an indicating pyrometer was installed in the assay furnace room, resulting in closer temperature control and more uniform annealing of assay fillets and assay cornets. One Ainsworth Assay balance (sensitivity 1/300th of a milligram) was also purchased.

## GENERAL

In April of this year, Mr. M. J. A. MacDonald, Principal Clerk, and K. C. West, Assayer Grade 3, visited the Mint in Ottawa for the purpose of studying operations and methods in use there. Valuable technical information was acquired, some of which has been put into practice in the Vancouver Assay Office.

Mr. F. R. Mulford, Manager, left the service on September 15th on six months retiring leave, at the expiration of which he will have completed thirty-four years of service with the Assay Office. Mr. Mulford jointed the office on September 3, 1918, as a clerk, and, was appointed Manager on July 1, 1947.

Mr. E. V. Murray, on behalf of the Master of the Royal Canadian Mint, Ottawa, presented Mr. Mulford with the Mint Long Service Medal for loyal and meritorious service. The staff of the Vancouver Assay Office presented Mr. Mulford with an engraved watch and chain.

## MINT LONG SERVICE AWARD

On 10th July, 1952, the following six members of the Staff were presented with the Mint Long Service Medal by the Minister of Finance, the Honourable Douglas Abbott, at a ceremony held in the Mint attended by all members of the Staff.

### ALFRED P. WILLIAMS

Mr. Williams entered the service of the Mint as a Junior Clerk on the 20th September, 1909<sup>1</sup>. He has served in the various Divisions of the Department as Junior Clerk, Senior Clerk, Technical Officer, Accountant, Secretary, and is now Chief Administrative Officer.

### ROBERT J. EDMUNDS

Mr. Edmunds was appointed to the Mint as a Junior Clerk on 2nd September, 1911. He has served in the various Divisions as Junior Clerk, Senior Clerk and Technical Officer. He was promoted to the post of Superintendent of the Operative Department on 1st January, 1939, and is at present Chief of the Coining and Medal Division.

### EDWIN V. MURRAY

Mr. Murray commenced duty in the Mint as a Third Class Workman in the Operative Department on 13th September, 1909. He was promoted to the post of Junior Clerk in 1919, and has served as Supervisor, Technical Officer and Principal Clerk in the Mint Office. At present Mr. Murray is Departmental Accountant.

### WILLIAM C. J. HELMAN

Mr. Helman commenced work in the Mint as a Third Class Workman on 1st June, 1911. He was promoted to Second Class Workman in 1919, and to Foreman in the Assay Office in 1920. Mr. Helman is at present an Assayer Grade 3 in the Assay Division of the Mint.

### PERCY T. MANSELL

Mr. Mansell was employed as a Third Class Workman at the beginning of his service on 13th September, 1909. He has served in the various Divisions of the Mint as a Craftsman and is at present in charge of maintenance of the assay and bullion balances in the Department.

### HORMIDAS FRECHETTE

Mr. Frechette entered the service of the Mint as a Third Class Workman on the 8th October, 1909. He has served in the Operative Department and the Mint Office as a Craftsman and is now in charge of the "telling" of the many millions of coins issued for circulation in Canada.



## GENERAL

The annual stocktaking and inspection of the store of bullion and coin, as required by the Act establishing the Royal Canadian Mint, was conducted by officers of the Auditor General's Department in March.

The Assay Commissioners, Mr. J. A. Fournier of the Division of Mineral Dressing and Process Metallurgy, Department of Mines and Technical Surveys, Dr. E. J. Caule, Chemistry Branch, National Research Council and Dr. A. F. Dunn, Division of Physics, National Research Council, appointed under the provisions of the Currency Act for the purpose of ascertaining that coins of the Currency of Canada struck at the Royal Canadian Mint during 1951 had been minted in accordance with the provisions of the said Act, were sworn by His Honour, Judge J. P. Madden, on the 6th day of May, 1952.

The findings of the Commissioners indicated that the coins, both as to weight and fineness, conformed with the standards established by the Currency Act.

Sixteen thousand, nine hundred and seventy-two visitors were admitted to view the coining operations of the Mint during the year.

The number on the staff as at 31st December 1952, was 220. Of this number 29 were employed in the Administrative and Mint Office, 136 in the Coining and Medal Division, 14 in the Assay Division, 32 in the Refinery and 9 in the Assay Office at Vancouver.

Appendix "A" shows the transactions in gold bullion since the opening of the Mint in January, 1908, and the details of the coin issues in Canada since 1858 are set out in Appendix "B".

An Act Respecting Currency, the Royal Canadian Mint and the Exchange Fund was given Assent on the 4th July, 1952, and brought into force by Proclamation dated 15th October, 1952.

Parts I and II of the Act together with the schedules for gold and subsidiary coins and amendment in connection with chromium plated steel five-cent coins, are shown in Appendices "D", "E" and "F".

I am, Sir,

Your obedient Servant,

W. C. RONSON,  
*Master, Royal Canadian Mint.*



## APPENDIX A

Summary of Transactions in GOLD BULLION of the Ottawa Branch of the Royal Mint from its opening on January 2, 1908, to its disestablishment on November 30, 1931, and of the Royal Canadian Mint from December 1, 1931 to December 31, 1952.

YEAR	GOLD RECEIVED		GOLD ISSUED	
	Gross Weight		Coin	Bullion
	Ounces	Fine Gold		
1908 to 1942.....	Ounces	Ounces	Ounces Fine	Ounces Fine
1943.....	89,153,382.588	71,957,169.906	383,319.096	71,487,749.974
1944.....	4,456,437.559	3,616,958.628		3,645,739.964
1945.....	3,537,734.636	2,862,048.659		2,829,755.000
1946.....	3,102,991.020	2,503,416.913		2,499,163.674
1947.....	3,271,246.445	2,652,244.865		2,665,964.763
1948.....	3,559,496.703	2,868,469.014		2,859,084.218
1949.....	4,252,389.454	3,401,991.441		3,405,073.335
1950.....	4,941,749.248	3,925,617.709		3,865,296.377
1951.....	5,485,956.751	4,422,968.129		4,347,961.898
1952.....	5,246,758.942	4,169,479.513		4,167,485.874
	4,848,048.381	3,953,158.154		4,031,068.071
	131,856,191.727	106,333,522.931	383,319.096	105,804,343.148



## APPENDIX "C"

## REGULATIONS PRESCRIBING THE CIRCUMSTANCES UNDER WHICH AND THE CONDITIONS UPON WHICH GOLD WILL BE ACCEPTED AT THE ROYAL CANADIAN MINT FOR CUSTOM REFINING AND STORING

1. These Regulations may be cited as The Mint Custom Refining and Storing Regulations (1952).

2. (1) In these Regulations,

- (a) "designated gold" means gold produced from the mine of a producer in the year 1952, on or after the elected date;
- (b) "elected date" means, with respect to a producer, the first day of January, April, July or October in the year 1952, as the producer designates, with the approval of the Minister, in making his election in Form A;
- (c) "Gold Bullion Regulations" means the Regulations for the Receipt of Gold Bullion at the Royal Canadian Mint, Ottawa, established by Order in Council P.C. 461 of March 7, 1934;
- (d) "Minister" means the Minister of Finance;
- (e) "Mint" means the Royal Canadian Mint;
- (f) "producer" means a person or corporation engaged in producing gold from a mine who has made an election by instrument in Form A delivered to the Minister;
- (g) "processor" means a person or corporation engaged in the business of processing gold in Canada who makes application and gives an undertaking in Form B, and whose application has been accepted by the Minister and who has not subsequently been disqualified under section eight.

(2) The Minister will not approve a date as the elected date in respect of a producer unless the producer has, before the expiry of thirty days from that date (or where the date to be elected is January 1, 1952, before the fifteenth day of February, 1952) delivered to the Minister an election in Form A designating that date as the elected date.

3. (1) Upon application by a producer in Form C the Minister may accept designated gold at the Mint for assaying, refining and storing on behalf of the producer.

(2) Where a producer, in accordance with a licence issued under the Gold Export Act,

(a) ships designated gold from Canada to be smelted or refined and subsequently sells the refined gold outside Canada, or

(b) sells designated gold to a smelter or refiner outside Canada,

at a price that, in the opinion of the Minister does not exceed the Mint price, the Minister may, upon being satisfied that the gold has been so sold, sell to the producer an amount of gold equivalent to the amount so sold and, subject to section four, store it at the Mint for the producer.

4. (1) Gold accepted at the Mint for assaying, refining or storing under these Regulations is so accepted subject to the condition that it will be released, in the form of fine gold (.995 fine or better), only upon application in accordance with these Regulations made by or on behalf of the producer,

- (a) for sale and delivery to a processor in granulated form, in an amount that, in the opinion of the Minister, does not exceed the normal requirements of the processor for the ensuing thirty days, and if, in the opinion of the Minister, it will be used for bona fide industrial purposes in Canada;
- (b) for delivery to a processor to be processed and exported on behalf of the producer, in accordance with a licence issued under the Gold Export Act, in the form of gold of 22 karat or lower fineness, or
- (c) for sale to His Majesty at the Mint at the official price for the purchase of gold by His Majesty at the Mint for the week in which the sale is made,

and for no other purpose.

(2) Where gold is released from the Mint to a producer, pursuant to these Regulations, it will be delivered, at the Mint counter at Ottawa, to a consignee designated by the producer, or to a carrier or other agent acting on behalf of the consignee.

5. (1) An application by a producer for sale and delivery of gold in accordance with paragraph (a) of section four shall be in Form D, and shall be accompanied by an offer to purchase gold in Form E.

(2) An application by a producer for delivery of gold in accordance with paragraph (b) of section four shall be in Form F and shall be accompanied by a copy of the offer to purchase the gold made by the consignee and the original or a photostatic copy of the import licence issued by the appropriate authority in the country of destination in respect of the proposed transaction, if such a licence is required or, if such a licence is not required, a statement to that effect by the consignee.

6. The following Mint service charges are payable by a producer:

- (a) where gold is melted, assayed or refined for the producer at the Mint, an amount in respect of the melting, assaying or refining calculated at the rates then prescribed therefor by the Gold Bullion Regulations in respect of deposits of gold at the Mint, payable when billed;
- (b) one cent for every thirty days or fraction thereof (including the day on which the gold is received at the Mint but excluding the day on which it is shipped from the Mint) for each ounce of gold stored for the producer at the Mint, payable at the time of application for release of the gold or when billed, whichever is the earlier;
- (c) ten cents for each ounce of gold packed for shipment at the Mint on the direction of the producer, payable at the time of application for release of the gold; and
- (d) a handling charge of twenty cents for each ounce of gold sold to His Majesty, payable at the time of sale.

7. The silver content of the gold bullion delivered to the Mint by a producer under these Regulations may be purchased by His Majesty at the official price for the purchase of silver by His Majesty at the Mint for the week in which it is so purchased.

8. (1) Where a person or corporation engaged in the business of processing gold in Canada makes application and gives an undertaking in Form B, the Minister may accept the application if he is satisfied that the applicant is engaged in a bona fide enterprise for the processing of gold and will carry out the undertaking in good faith.



(2) Where the Minister has reason to believe that a processor has failed to carry out any part of the undertaking given by him in Form B, or that gold sold to a processor has been dealt with in a manner contrary to the undertaking, he may, by notice in writing delivered to the processor, disqualify the processor.

9. Notwithstanding anything in these Regulations,

- (a) the Minister may designate a corporation that has adequate facilities for refining and storing gold as his agent to perform the services that would otherwise be performed at the Mint for a producer under these Regulations, and may enter into such agreements as he deem necessary for the purpose; and
- (b) services will be performed by an agent designated under this section only upon such terms and conditions as the Minister prescribes and the Minister may, in his discretion, for the purposes of this section, fix such charges in lieu of those prescribed by section six and make such other financial arrangements as he deems advisable.

10. The Minister may, where he considers it necessary or advisable for the purpose of administering these Regulations, amend the forms and prescribe additional forms.



## APPENDIX "D"

## 1 ELIZABETH II.

## CHAP. 40.

An Act respecting Currency, the Royal Canadian Mint  
and the Exchange Fund.

[Assented to 4th July, 1952.]

HER Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:

*Short title.*

1. This Act may be cited as *The Currency, Mint and Exchange Fund Act*. Short title.

*Interpretation.*

2. In this Act

- (a) "Minister" means the Minister of Finance;
- (b) "Mint" means the Royal Canadian Mint; and
- (c) "subsidiary coin" means a coin other than a gold coin.

Definitions,  
"Minister",  
"Mint",  
"subsidiary  
coin".

## PART I.

## CURRENCY AND COINAGE.

*Monetary Unit.*

3. (1) The monetary unit of Canada is the dollar.

(2) The denominations of money in the currency of Canada are dollars, cents and mills, the cent being one one-hundredth of a dollar and the mill one-tenth of a cent.

Monetary  
unit.  
Denominations.

*Gold Coins.*

4. Where the par value of the dollar has been established by or under an Act of the Parliament of Canada and is being maintained, the Governor in Council may by proclamation authorize the issue of gold coins of the denominations and standards of fineness specified in Part I of the Schedule, and the Governor in Council may, by such proclamation, amend Part I of the Schedule by prescribing the standard weight and remedy allowance for each coin specified therein, but the standard weight so prescribed for a coin shall be such that the value of the gold contained therein is equal to the amount that appears on the coin as the denomination thereof.

Gold coins.

*Subsidiary Coins.*Subsidiary  
coins.

**5.** (1) Every subsidiary coin made under the authority of this Act shall be of a description and of the standards applicable thereto specified in Part II of the Schedule.

Additional  
subsidiary  
coins.

(2) The Governor in Council may by proclamation amend Part II of the Schedule by prescribing denominations of subsidiary coins other than those specified therein; a coin of a denomination so prescribed shall be of a composition specified in Part II of the Schedule and of the fineness specified in Part II of the Schedule for coins of that composition and shall be of a standard weight that bears the same proportion to the weight specified in Part II of the Schedule as the denomination of the coin bears to the denomination of coins of like composition specified in Part II of the Schedule.

Temporary  
alteration of  
composition.

(3) Notwithstanding subsection two, where the Governor in Council by reason of a shortage of metals used in making any of the subsidiary coins specified in Part II of the Schedule deems it advisable in the public interest to curtail the use of such metals in making coins, he may by proclamation authorize the issue of a subsidiary coin of a denomination mentioned in Part II of the Schedule and amend Part II of the Schedule by prescribing the composition, standard weight and standard fineness thereof and the remedy allowance therefor.

*Current Coins.*

Current coins.

**6.** (1) Subject to subsection two, each of the following coins shall pass current for the amount in the currency of Canada that appears on the coin as the denomination thereof, namely,

- (a) a coin that was issued under the authority of the Crown for circulation in Canada, and
- (b) a coin that was issued under the authority of the Crown for circulation in any province of Canada before it became part of Canada and immediately before the coming into force of this Act was current and legal tender in Canada for the amount in the currency of Canada that appears on the coin as the denomination thereof.

Defaced  
coins not  
current.

(2) No coin that is bent, mutilated or defaced, or that has been reduced in weight otherwise than by abrasion through ordinary use, shall pass current.

*Legal Tender.*

Legal tender.

**7.** (1) Subject to this section, a tender of payment of money is a legal tender if it is made

- (a) in gold coins issued under the authority of section four;
- (b) in subsidiary coins that are current under the provisions of section six; or
- (c) in notes issued by the Bank of Canada pursuant to the *Bank of Canada Act* that are payable to bearer on demand and are intended for circulation in Canada.

1934, c. 43.

Limit on  
amounts of  
tenders.

(2) A tender of payment of money in coins specified in subsection one is a legal tender

- (a) in the case of gold coins, for payment of any amount;
- (b) in the case of coins of the denomination of ten cents or greater but not exceeding one dollar, for payment of an amount not exceeding ten dollars, but for no greater amount;

- (c) in the case of coins of the denomination of five cents or greater but less than ten cents, for payment of an amount not exceeding five dollars, but for no greater amount; and
- (d) in the case of coins of the denomination of one cent or greater, but less than five cents, for payment of an amount not exceeding twenty-five cents, but for no greater amount.

(3) Where more than one amount is payable by one person to another on the same day, whether under one or more obligations, subsection two applies as though the total of the amounts payable were one amount due and payable on that day.

Different amounts payable on same day.

(4) A coin described in subsection two of section six or a coin that has been called in is not legal tender.

Certain coins not legal tender.

**8.** (1) The Governor in Council may by proclamation

Powers of Governor in Council.

- (a) prescribe the dimensions and design of any coin;
- (b) amend the Schedule by diminishing the remedy allowance for coins of any denomination;
- (c) amend the Schedule by prescribing or altering the least current weight of coins of any denomination; and
- (d) call in coins of any date and denomination.

(2) The Governor in Council may make regulations for the redemption by the Minister of coins that are or that have at any time been current in Canada.

Redemption of coins.

#### *Counterfeit coins.*

**9.** Every officer employed in the collection of the revenue in Canada shall cut, break or deface or cause to be cut, broken or defaced every piece of counterfeit coin that is paid to him in payment of an amount payable to Her Majesty, and shall forthwith forward the counterfeit coin to the Minister of Finance.

Revenue officers to deface counterfeit coins.

#### *Melting gold coins.*

**10.** (1) Except under and in pursuance of a licence granted by the Minister, no person shall melt down, break up or use otherwise than as currency any gold coin that is for the time being current and legal tender in Canada.

Melting down gold coins.

(2) Every person who violates subsection one or any condition attached to a licence granted under subsection one is liable on summary conviction to a fine not exceeding two hundred and fifty dollars or to imprisonment for a term not exceeding twelve months or to both fine and imprisonment and in addition to any fine or imprisonment imposed the court may order that the articles by means of or in relation to which the offence was committed be forfeited to Her Majesty.

Penalty.

#### *Accounts, contracts, etc.*

**11.** All public accounts throughout Canada shall be kept in the currency of Canada; and any statement as to money or money value in any indictment or legal proceeding shall be stated in the currency of Canada.

Public accounts and statements to be in currency of Canada.

**12.** (1) Every contract, sale, payment, bill, note, instrument and security for money and every transaction, dealing, matter and thing whatever relating to money, or involving the payment of or

All contracts, etc., to be in currency of Canada.

the liability to pay any money, that is made, executed or entered into, done or had, shall be made, executed, entered into, done and had according to the currency of Canada, unless it is made executed, entered into, done or had, according to the currency of a country other than Canada.

Previous  
contracts, etc.

(2) Every contract, sale, payment, bill, note, instrument and security for money and every transaction, dealing, matter and thing relating to money or involving the liability to pay any money, that was made, executed or entered into, done or had before the coming into force of this Act, so far as anything remains to be or may be executed, done or had thereunder after the coming into force of this Act, shall be construed and operates as though this Act had not been passed.

Sums  
mentioned  
in Acts.

**13.** All sums mentioned in dollars and cents in the *British North America Acts, 1867 to 1951*, and in all Acts of the Parliament of Canada shall, unless it is otherwise expressed, be understood to be sums in the currency of Canada.

## PART II.

### THE ROYAL CANADIAN MINT

Royal  
Canadian  
Mint.

**14.** (1) There shall be a branch in Ottawa of the Department of Finance called the Royal Canadian Mint, at which there shall be provided facilities for making coins of the currency of Canada, and for melting, assaying and refining gold.

Assay  
offices.

(2) The Governor in Council may establish outside of Ottawa a branch of the Mint to provide facilities for melting and assaying gold or performing any other function of the Mint other than making coins.

Staff.

**15.** (1) The Master of the Mint and such other officers, clerks and employees as are required for the operation of the Mint shall be appointed in accordance with the *Civil Service Act*.

R.S., c. 22.

Superannuation.

(2) An officer, clerk or employee who was, on the first day of December, nineteen hundred and thirty-one, employed in the Mint, who has continually since that date been so employed and has not elected to become a contributor under the *Civil Service Superannuation Act*, is entitled to receive the benefits that he would have received if he had remained under the *Superannuation Act, 1859*, or the *Superannuation Act, 1909*, as the case may be, and amending Acts, of the statutes of Great Britain, as they were in force on the first day of December, nineteen hundred and thirty-one, and for such purposes his service with the Mint shall be deemed to be service with the Royal Mint.

R.S., c. 24.

Idem.

(3) An officer, clerk or employee who was, on the first day of December, nineteen hundred and thirty-one, employed in the Mint, and who, being eligible to become a contributor under the *Civil Service Superannuation Act*, has elected to become such a contributor within three months after the said date, is subject to the *Civil Service Superannuation Act* and his prior service with the Royal Mint or a branch thereof is deemed to be service in the Civil Service within the meaning of the *Civil Service Superannuation Act*.



(4) The amounts necessary to provide for payment of retirement benefits under subsection two shall be paid out of the Consolidated Revenue Fund, and the Minister may out of the Consolidated Revenue Fund reimburse the government of any country for any pension or annuity paid by that government to any person in respect of his service with the Ottawa Branch of the Royal Mint. Payments out of C.R.F.

**16.** All coins of the currency of Canada that are to be issued for circulation in Canada shall be made at and issued from the Mint. All coins to be made at Mint.

### *Regulations.*

**17.** (1) The Governor in Council may make regulations, Regulations.

- (a) for buying such quantities of gold, silver and other metals as are necessary to provide adequate supplies of coin for circulation in Canada;
- (b) for buying and selling gold at the Mint;
- (c) for assaying, refining, storing and otherwise dealing with gold at the Mint for the account of Her Majesty or others;
- (d) prescribing prices, charges and other terms upon which metals may be bought, sold, assayed, refined and stored at the Mint;
- (e) for the making of coins at the Mint for countries other than Canada and the terms and conditions upon which such coins may be made; and
- (f) with respect to any matters relating to the coinage and the Mint within the present prerogative of the Crown that are not provided for by this Act, including the making of medals, plaques and other devices.

(2) All amounts received from the issue of coins and from the sale, assay, refining or storage of metals at the Mint shall be paid into the Consolidated Revenue Fund and all amounts payable for metals bought pursuant to this section and for the redemption of coins shall be paid out of the Consolidated Revenue Fund. Consolidated Revenue Fund.

### *Assay.*

**18.** (1) The Governor in Council shall appoint no fewer than three persons to be Assay Commissioners, for the purpose of determining whether coins issued from the Mint are of the standards applicable thereto as provided for in the Schedule, and they shall serve without remuneration. Appointment of Commissioners.

(2) The Assay Commissioners shall, in accordance with the regulations, but not less frequently than once in each year, meet and examine and test, in the presence of such officers of the Mint as the Governor in Council prescribes, the fineness and weight of the coins reserved for the purpose, and shall declare whether, in their opinion, the coins are of the standards applicable thereto as provided for in the Schedule, and in what respects, if any, they deviate therefrom. Examination and test.

(3) The findings of the Assay Commissioners shall be published in the Canada Gazette. Findings.

(4) The Governor in Council may make regulations respecting proceedings at and the conduct of the examination and test of coins Regulations.



required by this section (hereinafter referred to as the trial of the pyx), and all matters incidental thereto, and in particular respecting

- (a) the time and place of the trial of the pyx;
- (b) the setting apart out of the coins made at the Mint of certain coins for the trial of the pyx and the custody and production of the coins so set apart, and the production of the standard weights and trial plates mentioned in section nineteen;
- (c) the persons who shall attend at the trial of the pyx; and
- (d) the recording of the findings of the Assay Commissioners as a result of the trial of the pyx and the proceedings, if any, to be taken in consequence thereof.

Standard  
of weight.

Local  
standards.

1951 (1st  
Sess.), c. 36.

Minister of  
Trade and  
Commerce to  
supply  
standards.

Custody of  
standards.

Trial plates.

**19.** (1) The ounce troy is the standard for measuring the weight of coins under this Act.

(2) Local standards derived from the reference standards of troy bullion weights in the custody of the Minister of Trade and Commerce under the provisions of *The Weights and Measures Act*, and compared and verified under the direction of the Minister of Trade and Commerce in accordance with that Act, shall be used for the purpose of determining the justness of the weight of coins under this Act.

(3) The Minister of Trade and Commerce shall, for the trial of the pyx, provide the local standards referred to in subsection two and any weighing machines that may be required.

(4) Except when required for the trial of the pyx, local standards and weighing machines referred to in this section shall remain in the custody of the Minister of Trade and Commerce.

(5) The Minister of Finance shall from time to time when necessary cause trial plates of pure gold and of pure silver to be made, duly verified and deposited with the Minister of Trade and Commerce and such trial plates shall be used to determine the justness of the gold and silver coins examined and tested pursuant to this Act.

Inspection  
by Auditor  
General.

**20.** The Auditor General shall, at least once in each year, inspect the store of bullion and coin at the Mint.

#### *Report on Mint Operations.*

Report on  
operations  
of Mint.

Report to be  
laid before  
Parliament.

**21.** The Master of the Mint shall on or before the thirty-first day of March in each year prepare and submit to the Minister a report respecting the operation of the Mint for the immediately preceding calendar year, and the Minister shall lay the report before Parliament forthwith or, if Parliament is not then sitting, within fifteen days after the commencement of the next ensuing session.

NOTE:—Only those sections of the Act which apply to the Mint are shown in the above appendix.

# SCHEDULE

## PART I

### Gold Coins

I DESCRIPTION		II STANDARDS		III REMEDY ALLOWANCE		IV LEAST CURRENT WEIGHT
Denomination	Composition	Standard weight	Standard fineness	Weight per piece	Millesimal fineness	
Twenty dollars..... Ten dollars..... Five dollars.....	Gold	Grains	Nine-tenths fine; or millesimal fineness, 900	Grains		

The standards specified in Column II are deemed to be satisfied with respect to a coin of a description specified in Column I if the coin does not vary in weight or fineness in an amount greater than the amount set opposite the description of the coin in Column III, and a coin that has been in circulation shall not be deemed to fall below the standard weight applicable thereto by reason only that its weight has diminished by abrasion through ordinary use if its weight is not less than the least current weight applicable thereto in Column IV.

PART II  
Subsidiary Coins

I DESCRIPTION		II STANDARDS		III REMEDY ALLOWANCE		IV LEAST CURRENT WEIGHT
Denomination	Composition	Standard weight	Standard fineness	Weight per piece	Millesimal fineness	
One dollar.....	Silver.....	Grains 360	Eight-tenths fine; or millesimal fineness, 800	Grains 5.00	6	
Fifty cents.....		180		4.00	6	
Twenty-five cents.....		90		3.00	6	
Ten cents.....		36		*3.00	6	
Five cents.....	Pure nickel.....	70	—	†2.00	—	
Cent.....	Bronze (copper, tin and zinc).	50	—	‡140.00	—	

\* This remedy is on a group of one dollar's worth, ten pieces.

† This remedy is not to exceed one hundred grains per avoirdupois pound of one hundred pieces.

‡ This remedy is on a group of one hundred and forty pieces weighed against a weight of one pound avoirdupois.

The standards specified in Column II are deemed to be satisfied with respect to a coin of a description specified in Column I if the coin does not vary in weight or fineness in an amount greater than the amount set opposite the description of the coin in Column III, and a coin that has been in circulation shall not be deemed to fall below the standard weight applicable thereto by reason only that its weight has diminished by abrasion through ordinary use if its weight is not less than the least current weight applicable thereto in column IV.

## APPENDIX E

CURRENCY, MINT AND EXCHANGE FUND ACT—COMPOSITION  
OF FIVE CENT STEEL COINVINCENT MASSEY  
(L. S.)*Canada*ELIZABETH THE SECOND, by the Grace of God, of Great Britain, Ireland  
and the British Dominions beyond the Seas QUEEN, Defender of the Faith.TO ALL TO WHOM these Presents shall come or whom the same may in  
anywise concern,—GREETING:*A Proclamation*

F. P. VARCOE, Deputy Attorney General, Canada. WHEREAS subsection three of section five of The Currency, Mint and Exchange Fund Act, Chapter 40 of the Statutes of 1952, provides that Our Governor in Council may by Proclamation authorize the issue of a subsidiary coin of a denomination mentioned in Part II of the Schedule to the said Act and amend the said Part II by prescribing the composition, standard weight and standard fineness thereof and the remedy allowance therefor.

NOW KNOW YE that by and with the advice of Our Privy Council for Canada We do hereby authorize, effective from the date hereof, the issue of a five cent coin of steel with chromium finish having the same dimension and design as are from time to time authorized for the five cent coin and We do hereby amend the said Part II by prescribing the following composition, standard weight and remedy allowance with respect to the said coin:

Denomination	Composition	Standard Weight	Remedy Allowance
Five Cents	Steel with chromium finish	70 grains	Weight per piece 2.00 grains

OF ALL WHICH Our Loving Subjects and all others whom these Presents may concern are hereby required to take notice and to govern themselves accordingly.

IN TESTIMONY WHEREOF We have caused these Our Letters to be made Patent and the Great Seal of Canada to be hereunto affixed. WITNESS: Our Right Trusty and Well-beloved Counsellor, VINCENT MASSEY, Member of Our Order of the Companions of Honour, Governor General and Commander-in-Chief of Canada.

AT OUR GOVERNMENT HOUSE, in Our City of Ottawa, this Twenty-fifth day of November in the year of Our Lord One thousand nine hundred and fifty-two and in the First year of Our Reign.

By Command,

C. STEIN,  
*Under Secretary of State.*

## APPENDIX F

CURRENCY, MINT AND EXCHANGE FUND ACT—DESIGN AND  
DIMENSIONS OF NEW CURRENCYVINCENT MASSEY  
(L. S.)*Canada*

ELIZABETH THE SECOND, by the Grace of God, of Great Britain, Ireland  
and the British Dominions beyond the Seas QUEEN, Defender of the Faith.

TO ALL TO WHOM these Presents shall come or whom the same may in  
anywise concern,—GREETING:

*A Proclamation*

F. P. VARCOE, WHEREAS section eight of The Currency,  
Deputy Attorney General, Mint and Exchange Fund Act, Chapter 40 of the  
Canada. Statutes of 1952, provides that Our Governor in  
Council may by Proclamation prescribe the dimensions and design of any coin.

NOW KNOW YE that by and with the advice of Our Privy Council for  
Canada we do hereby proclaim, direct and prescribe, effective the second day  
of January, one thousand nine hundred and fifty-three, the dimensions and  
design of coins, as follows:

1. The design for the obverse impression on coins of all denominations to  
be made under the provisions of the said Act shall be the uncrowned effigy of  
Her Majesty Queen Elizabeth the Second with the inscription "Elizabeth II  
Dei Gratia Regina".

2. The designs for the reverse impressions on silver, nickel and bronze coins  
to be so made shall be as hereinafter set out, viz.:

(1) One Dollar—A Canoe manned by an Indian and a Voyageur, an  
islet in the background; above, the word "CANADA" with the Northern  
Lights; below the word "DOLLAR" and the date of the year, with a  
graining upon the edge.

(2) Fifty Cents—Between Supporters the Ensigns Armorial of Canada  
in a shield surmounted by the Royal Crown, "50 CENTS" above and  
"CANADA" below, with the date of the year and a graining upon the edge.

(3) Twenty-five Cents—A Caribou head, "25 CENTS" between the  
antlers, and surrounded by the word "CANADA" and the date of the year,  
with a graining upon the edge.

(4) Ten Cents—A Fishing Schooner under sail, "CANADA" above  
and "10 CENTS" below, with the date of the year, and a graining upon  
the edge.

(5) Five Cents—A Beaver; above "5 CENTS" between two maple  
leaves, and below "CANADA" and the date of the year with a plain edge.

(6) One Cent—A Two-leaved Twig of Maple, "1 CENT" above, and  
"CANADA" below, with the date of the year, and a plain edge.



3. The dimensions of coins to be so made shall be as hereinafter set out, viz.:

- (1) One Dollar—diameter: 1·420 inches;
- (2) Fifty Cents—diameter: 1·170 inches;
- (3) Twenty-five Cents—diameter: 0·930 inches;
- (4) Ten Cents—diameter: 0·710 inches;
- (5) Five Cents—The coin to have twelve sides and to measure 0·822-0·824 inches between parallel sides and 0·836-0·838 inches between the opposite angles;
- (6) One Cent—diameter: 0·750 inches.

OF ALL WHICH Our Loving Subjects and all others whom these Presents may concern are hereby required to take notice and to govern themselves accordingly.

IN TESTIMONY WHEREOF We have caused these Our Letters to be made Patent and the Great Seal of Canada to be hereunto affixed. WITNESS: Our Right Trusty and Well-beloved Counsellor, VINCENT MASSEY, Member of Our Order of the Companions of Honour, Governor General and Commander-in-Chief of Canada.

AT OUR GOVERNMENT HOUSE, in Our City of Ottawa, this Twenty-fifth day of November in the year of Our Lord One thousand nine hundred and fifty-two and in the First year of Our Reign.

By Command,

C. STEIN,  
*Under Secretary of State.*







Government  
Publications















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